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*A primer of*  
BOOK CLASSIFICATION



A PRIMER OF  
**BOOK**  
CLASSIFICATION

BY  
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## PREFACE

THIS Primer has been prepared as a complement to the existing text-books, and its treatment of the subject follows a similar order. Many details have been duplicated in an attempt to provide, in a handy and inexpensive form, the essential material for a rapid yet thorough revision. Throughout, the subject is considered from an examination point of view, an effort being made to provide stimulus and to encourage individual thought.

The Classification Tutors of the Association of Assistant Librarians—Miss M. S. Taylor, Messrs Chandler, Halliday, Micklewright, Reynolds, Walford and Wisker—have generously placed their varied knowledge and experience at my disposal, while my thanks are also due to Mr L. A. Burgess for helpful notes on certain topics.

The debt to existing literature, especially the works of Mr W. C. Berwick Sayers, is obvious.

W. HOWARD PHILLIPS

*May, 1937.*

## PREFACE TO REVISED EDITION

The opportunity has been taken of revising throughout, with the addition of further details on many topics. In particular the chapters on the Bliss, Brown and Dewey schemes have been brought up-to-date and a much needed index has been appended.

W.H.P.

*December, 1945*





# CONTENTS

	PAGE
PREFACE . . . . .	5
THE THEORY OF CLASSIFICATION . . . . .	9-19
NATURAL AND ARTIFICIAL CLASSIFICATION . . . . .	10
TERMS . . . . .	12
PREDICABLES . . . . .	12
TREE OF PORPHYRY MORE TERMS . . . . .	13
FORMAL RULES OF DIVISION . . . . .	15
BOOK CLASSIFICATION . . . . .	20-31
KNOWLEDGE AND BOOK CLASSIFICATION . . . . .	20
VALUE OF BOOK CLASSIFICATION . . . . .	21
DISADVANTAGES . . . . .	23
KNOWLEDGE CLASSIFICATION AS A BASIS . . . . .	25
JEVONS'S STATEMENT . . . . .	26
CONSTRUCTION OF SCHEDULES . . . . .	27
SPECIAL FEATURES OF BOOK CLASSIFICATION . . . . .	32-54
GENERALIA CLASS . . . . .	32
FORM CLASSES . . . . .	33
FORM DIVISIONS . . . . .	35
NOTATION . . . . .	37
AUXILIARIES OF NOTATION . . . . .	47
INDEX . . . . .	51
CRITERIA OF A BOOK CLASSIFICATION . . . . .	53
THE PRINCIPAL SCHEMES OF BOOK CLASSIFICATION . . . . .	55-144
THE DECIMAL CLASSIFICATION . . . . .	57
CUTTER'S EXPANSIVE CLASSIFICATION . . . . .	75
LIBRARY OF CONGRESS CLASSIFICATION . . . . .	89
THE SUBJECT CLASSIFICATION. . . . .	105
THE CLASSIFICATION DECIMALE UNIVERSELLE . . . . .	121
THE COLON CLASSIFICATION . . . . .	128
THE BLISS CLASSIFICATION . . . . .	132

## CONTENTS

	PAGE
PRACTICAL APPLICATION OF BOOK CLASSIFICATION . . . . .	145-162
PRACTICAL CLASSIFICATION . . . . .	145
GENERAL NOTES . . . . .	145
RULES FOR CLASSIFYING . . . . .	147
AIDS TO CLASSIFICATION . . . . .	149
CRITICAL CLASSIFICATION . . . . .	149
CLOSE <i>o</i> BROAD CLASSIFICATION . . . . .	150
SHELF ARRANGEMENT . . . . .	152
GUIDES . . . . .	153
DISPLAY WORK . . . . .	159
CLASSIFICATION OF FICTION . . . . .	160
OTHER USES OF CLASSIFICATION . . . . .	163-171
OFFICE PAPERS . . . . .	163
LOCAL COLLECTIONS . . . . .	164
JUNIOR LIBRARIES . . . . .	168
SPECIAL COLLECTIONS . . . . .	169
SPECIAL LIBRARIES . . . . .	169

## APPENDICES

I. FUTURE OF THE CLASSIFICATION DECIMALE . . . . .	172
II. A UNIVERSAL SCHEME OF BOOK CLASSIFICATION . . . . .	176
III. HINTS TO CANDIDATES—REVISION . . . . .	177
INDEX . . . . .	181

## THE THEORY OF CLASSIFICATION

THE term *classification* applies to the process of arranging *individuals*, i.e., individual objects or ideas, into groups according to their degrees of likeness, and combining these groups into still larger groups. The process is completed when a single all-embracing group which contains all individuals is reached. The term *division* refers to the reverse procedure. Here a single group is subdivided according to some quality possessed or not possessed by some of the individuals it contains. The sub-groups thus obtained may be further subdivided in the same way, until further division is impossible or unnecessary.

Generally speaking, both these processes are referred to as classification, and it is said that classification is a separating as well as a grouping process, it collects like things and separates unlike things.

Classification is probably the simplest method of discovering order in the bewildering multiplicity of nature. It is a process of sorting, ideas or objects are collected into groups, and these groups stand for certain qualities which its members possess. In the history of every science, it is the first method to be employed—so much so that some sciences are known as "Classificatory Sciences." Jevons has assessed the relationship between science and classification in the following words: "Science is the detection of identity, and classification is the placing together, either in thought or in actual proximity of space, those objects between which identity has been detected. Accordingly the value of classification is co-extensive with the value of science and general reasoning. Whenever we form a class we reduce multiplicity to unity, and detect, as Plato said, the one in the many."<sup>1</sup> Classification not only assists the memory by arranging individuals into groups, but expresses the relationships of things and leads to the discovery of their laws.

Classification is essentially a mental process, we group or separate according to our concepts or ideas of the individuals. The mental process of separation or grouping is called *abstraction*. It is an aid to the memory and reasoning power. Nothing can be identified without it, in fact all thought and reasoning may be said to consist of classification.

<sup>1</sup> Jevons, J. S., *Principles of science*, 1874, Vol. 2, p. 345.

## BOOK CLASSIFICATION

When we recognise "a little black dog," we distinguish the dog as an animal from all other mammals and further identify it by recognising size and colour. Similarly when we *know* that water is wet, that a fire is hot, that a ball is round, that chickens lay eggs, that cows give milk, that birds fly, that caution is necessary when crossing a busy thoroughfare, we automatically employ classification. Everyday life abounds in the use of classification, however elementary. The arrangement of a railway time table, the display of goods in a shop window, on the counters of a chain store or on a coster's barrow, the allocation of seats in a theatre, the usual separation of money into coins and notes—these examples can be multiplied indefinitely.

J S Mill says that the purpose of classification is primarily "to facilitate the operations of the mind in clearly conceiving and retaining in the memory the characters of the objects in question."

A *general classification* sets out to cover the whole field of knowledge, a *special classification* to classify the branches of one section of knowledge.

## NATURAL AND ARTIFICIAL CLASSIFICATION

The idea, quality, likeness, or unlikeness by which individuals are grouped or separated is called the *characteristic* or principle of division.

A bundle of rags might be divided into various groups according to material, colour, size, or cleanliness, these are the various characteristics governing the respective groupings. If the rags are sorted according to *material*, all rags of silk will be together and separated from groups consisting of woollen rags, cotton rags, and so on. A distinguishing factor, fundamental to the nature of every rag, is used. This characteristic is called a natural one, and the results of the grouping a *natural classification*. A natural classification may be defined as one which groups or separates a series of individuals according to their fundamental likeness or unlikeness. It is implied in *homology*, i.e. the likeness which resides in individual things constructed on the same plan.

Any piece of silk (or cotton) could be of any colour, size, or state of cleanliness, and still be a piece of silk (or cotton), so that if the rags are sorted into groups of similar colour, size, or according to their degrees of cleanliness, the basis of division depends on an accidental quality, called an accidental characteristic. If the characteristic *cleanliness* is used, the mere action of rubbing a rag on a dirty floor might

## THE THEORY OF CLASSIFICATION

qualify it for inclusion in a different group. The resultant grouping is called an artificial arrangement—an *artificial classification*. This may be defined as one which groups or separates a series of individuals according to some external or accidental likeness or unlikeness. It is the result of reasoning by *analogy*, i.e. the likeness between individuals having a similar function, appearance, or purpose. The rags composing the groups would show a likeness of colour, size, or cleanliness according to the characteristic chosen, and this likeness would be obvious at even a superficial examination. This is an advantage of most artificial classifications.

Theoretical classification is an attempt to formulate a scheme of mutually exclusive and collectively exhaustive categories, based on the most important characteristics and relations of the individuals concerned. The more closely a classification approaches this ideal arrangement the more claim has it to be called a natural one. A classification which deviates from this ideal, as usually happens when it is made for some practical purpose, is called an artificial one.

*Natural* and *artificial* are only descriptive terms. The classification of plants by Linnaeus was, at the time of its formulation, considered severely natural. This classification grouped plants into two main classes<sup>1</sup>

- (1) Flowers present (divided into groups according to the presence, size and number of stamens and pistils)
- (2) Flowers absent

This scheme is now obviously artificial. In the same way a future scientific discovery may make obsolete and artificial many of our present day natural schemes.

The important distinction of natural classification is that from the main quality or difference, which decides the group, further qualities can more obviously be inferred in that group. This may be further explained. In one of the earliest classifications Birds were defined and grouped as "Flying animals."<sup>2</sup> In modern natural (biological) classification, for the purpose of definition, a certain prominent and fundamental quality, or qualities, is selected as the difference, e.g. Birds are defined as "feathered vertebrates" or "feathered bipeds." In addition to this special quality, it is found that all birds have other qualities (or properties)

<sup>1</sup> and <sup>2</sup> Sayers, W. C. B., *Manual of library classification*, p. 944, pp. 31-32)

## BOOK CLASSIFICATION

in common, e.g. two wings, two legs, two eyes, a beak, warm and rich blood, quick breathing, a strong heart, perfect digestion, great activity, and so on. Thus, once it is realized that a certain animal is a bird, i.e. a feathered vertebrate, it may be inferred that it will possess wings, legs, a beak, warm blood, will lay eggs, etc. This is called the *correlation of properties*. Thus the qualities inferred from "feathered biped" greatly exceed those inferred from "flying animal". All logical inference implies classification.

### TERMS

Returning to our previous example, if the colour grouping of Rags is transcribed to paper we have

RAGS

Blue Rags

Red Rags

White Rags

Yellow Rags

Etc

The written words are called *terms*, the written statement of the subdivisions is called a *schedule*, the group, Rags, is called a *class*, and the sub-groups, Blue Rags, Red Rags, etc., its *divisions* or *subdivisions*.

The single class Rags may also be called a *genus*, the division, Blue Rags, a *species*. By adding the quality, Blue, to the genus, Rags, we obtain the species, Blue Rags. Similarly by adding the quality, Red, we obtain the species, Red Rags, the qualities blue and red are called the *differences*.

Genus + Difference = Species

Rags + Blue = Blue Rags

The characteristic is really an idea, i.e. the basis of the various differences which govern the division (or groupings) and the selection of the differences. In the above schedule *colour* is the characteristic, and *blue*, *red*, *white*, and *yellow* are the differences.

### PREDICABLES

The terms genus, species, and difference belong to a group of logical terms known as the *Five Predicables*, which state all the possible relations a predicate may express concerning a subject. These were advanced by the Greek logician, Porphyry, and may be defined

## THE THEORY OF CLASSIFICATION

**Genus** A series of objects or ideas (or a term which represents these things) which can be divided into two or more groups called **Species**.

**Species** are therefore the groups into which the genus may be divided.

**Difference** is that quality added to the genus to form the species

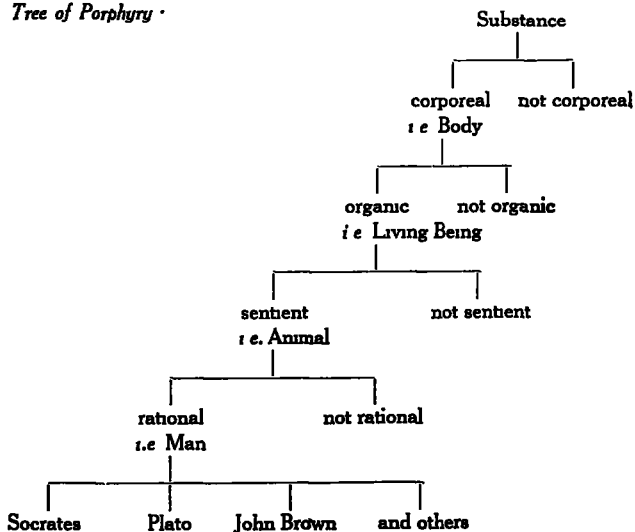
**Property** is a quality common to every member of the genus, but which is not confined to that genus and is not essential to the definition of that genus A property of Rags is the quality of being pliable

**Accident** is a quality which may or may not be possessed by any member of the genus Its possession is a pure accident and has no fundamental connexion with any member of the genus As has been shown, an accident can frequently be used as a difference, e.g. the colour or size of a rag.

The principles laid down in the **Predicables** govern all classification, for all division proceeds by the addition of differences to the genera.

### TREE OF PORPHYRY. MORE TERMS

The first three predicables are simply illustrated in the well-known *Tree of Porphyry* :





## BOOK CLASSIFICATION

Substance is the genus, to which is added the difference, the possession of corporeality, to obtain the species Body, and so on down the Tree to Individual Man. It is seen that Body, Living Being, and Animal can be treated both as genera and as species, e.g. Body is a species of substance and a genus with regard to Living Being.

In technical language, Substance, the single all-embracing class from which the division commences, is called the *sumum genus*. The intermediate classes, Body, Living Being, and Animal, are called *subaltern genera* and the class or classes with which the division ends the *infima species*. The term Substance is said to have great *extension* and small *intension*, while John Brown has great *intension* and small *extension*. By this we mean that the sum of the objects or ideas covered by the word Substance is great, but the qualities implied are few. On the other hand, a particular John Brown covers but one individual person, and the qualities implied are many—all those that distinguish John Brown from every other man who lives or has lived, as well as, of course, those which distinguish Man from Living Being, Animal, etc.

The extension of a term is the aggregate of objects covered by that term. The intension of a term is the aggregate of qualities implied by that term, or, in other words, the minimum qualities necessary for the definition of the term. Thus there are two ways of looking at a term. In extension we regard it as a class name which "covers" a certain thing or number of things; in intension we consider it from the point of view of its meaning or qualities. For the purpose of our study, the extension or intension of a term are synonymous with the *denotation* and *connotation* of that term.

Connotation = Intension = Qualities = Dictionary definition

The connotation or intension of the term "Library" is the qualities of a library, i.e. a place where books are kept, where they may be read, borrowed, etc. The denotation or extension is the objects covered by the term, i.e. all the individual libraries of the world, all those that exist, have existed, or will exist. If the term "Public Library" is considered, the qualities are increased, since there are special characteristics of a public library not applicable to all libraries. The number of objects, however, has decreased. Similarly with the term "Dagenham Public Library," the connotation is far greater than that of "Library" or

## THE THEORY OF CLASSIFICATION

"Public Library," while the denotation has decreased until *one* object only is covered by the term

It follows that in any schedule, formed by adding differences to the genera, the terms in the order of the hierarchy gradually increase in intension and decrease in extension. A genus has always greater extension than its species and, similarly, the species have always greater intension than their genus.

The value of the Tree in the study of classification has been overrated. It was not advanced as a classification of knowledge, but merely as an illustration of Porphyry's theory that all things are inter-dependent. As a classification it is very incomplete. Many biological steps are missing, and it places but one topic only, Individual Man. The Tree is of value, in that it is a simple example of a *hierarchy*, i.e. a series divided in ranks or orders, and a clear illustration of a method of subdivision, known as *dichotomy* or *bifurcation*. The division is said to be dichotomous when at each step every class is subdivided into two, and only two, sub-classes, one of which is a positive class and the other its contradictory or correlative negative class. This method has slight theoretical or practical value, partly because at each step one of the two groups is merely negatively characterized.

### FORMAL RULES OF DIVISION

The advantage of dichotomous division is that it ensures that no branch of the genus is omitted and ensures conformity with the formal rules of division, as accepted by logicians. The Tree is useful as it furnishes a simple, clear illustration of these rules, which are

(1) *Each step must be based upon a single principle of division* in other words, the characteristic must be used consistently at *each step of the division*.

(2) *Co-ordinate classes must be mutually exclusive*. Co-ordinate classes are classes of the same order, equal in rank, degree or importance. A breach of the first rule involves of necessity a breach of the second.

The Tree obeys these rules. To obtain Living Being the difference *organic* is added to Body. This excludes from the class, Living Being,

## BOOK CLASSIFICATION

every other type of Body, which would be grouped with Non-Organic Body. In the example quoted on p. 12 the characteristic used was colour, the single characteristic was consistent. If, however, another characteristic, say, Material, were introduced, the result might be

### RAGS

Blue Rags.

Cotton Rags

Red Rags

Silk Rags

Velvet Rags

White Rags

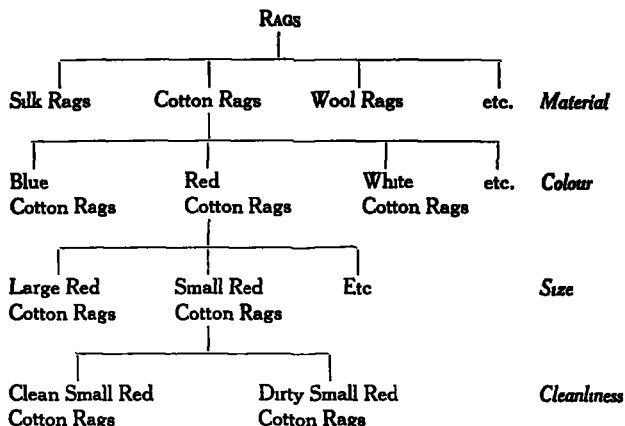
Etc.

Here two characteristics govern the division at one step, the characteristic used is inconsistent, and *cross division* or *cross classification* has resulted. A silk rag may be blue, red, white, or any other colour, and so could be assigned to more than one place in the classification, the classes are not exclusive. Non-exclusive classes involve the separation of like things, thus, on the definition of classification, cross classification at any one step is logically inadmissible.

*Terms must also be used consistently without ambiguity of meaning.* Such is the limitation of our language, that, in many cases, the meaning of terms used must be defined at different places in the schedules to ensure this condition. Full definition of the meaning and use of terms becomes necessary in the schedules of any detailed classification scheme where any ambiguity may arise.

It does not follow, of course, that one characteristic must be used consistently throughout the classification. This is impossible in practice, in fact, the division of a topic may be indefinitely extended, and is limited only by the number of principles of division which may be theoretically introduced. For example, Literature may be divided by language, form, and period, History by geography and period, and so on. When grouping Rags, all the characteristics mentioned may be used, and the final groupings would still obey the two rules.

## THE THEORY OF CLASSIFICATION



Each step has been based on a single principle of division, and the co-ordinate classes are mutually exclusive

(3) *Co-ordinate classes must be collectively exhaustive, i.e. co-extensive with the summum genus* This does not mean that division should be carried out to the most minute detail, but merely that the sum of the species should equal the genus—that there is nothing omitted which should be included in that genus. The sum of the things covered by the two classes, Corporeal Body and Incorporeal Body, in the Tree gives the total covered by Substance, i.e. the denotation of Substance. If the classification were considered to commence at Body, the total number of things covered by Organic Body and Non-Organic Body would equal all those covered by Body. In more logical language, the sum of the denotations of Organic and Non-Organic Bodies equals the denotation of Body, the sum of the denotations of the species should equal the denotation of the genus. Complete actual exhaustiveness cannot be obtained even in a special classification for some such single subject as Chemistry, Physics, or Psychology. Provision must be made at any stage of the subdivision for the inclusion of new topics as they arrive. *The schedules must be expansive*

## BOOK CLASSIFICATION

These three rules define the formal conditions to which a classification should conform, but they are obviously not sufficient to ensure that the result would be of practical or theoretical value. The practical or theoretical requirements can only be defined by reference to the *purpose* and use to be made of the classification. The purpose governs the method of division. A quilt-maker might quite conceivably arrange his rags according to colour, while a rag-picker might group rags into "Dirty Rags" and "Clean Rags". Both arrangements are essential to the purpose in hand and the characteristics thus chosen are called *essential characteristics*. In both cases an artificial characteristic has been used, it does not follow that the essential characteristic is a natural one, or that a natural grouping is the best for every purpose.

Again, a classification of plants formulated to assist identification would differ from one formulated to exhibit their important botanical features. Both characteristics used here would be natural ones, the natural characteristic of any group of objects is not necessarily limited to one only.

The purpose of the classification governs the extent of the subdivision. A classification of flowering plants for scientific purposes would be subdivided in detail with the avoidance of any jumps in the hierarchy. On the other hand, a classification of flowering plants for an amateur gardener might contain only a few broad divisions—the purpose of the grouping would demand no more detailed treatment.

The following *four* rules, then, govern theoretical classification and the subdivision of any group of individuals.

- (1) Characteristics must be used consistently at each step of the division.
- (2) Classes must be mutually exclusive. Terms must be used in an invariable sense throughout.
- (3) Division must be exhaustive.
- (4) Characteristics used must be essential to the purpose of the classification.

These rules may be compared with the *Canons of Classification* advanced by Mr. W. C. Berwick Sayers<sup>1</sup>:

- (1) Division proceeds from terms of great extension and small intension to terms of great intension and small extension.

<sup>1</sup>Sayers, W. C. B., *Introduction to library classification*, 1943, p. 15.

## THE THEORY OF CLASSIFICATION

(2) The process must be gradual, each term modulating into the term following it, and the whole perfectly co-ordinated

(3) Characteristics chosen as the basis of division must be essential to the purpose of the classification

(4) Characteristics must be consistent

(5) Terms used must be mutually exclusive

(6) Enumeration of parts must be exhaustive

It is essential that the rules already outlined be considered as *theoretical* precepts. Their real significance should be understood and their value to the study of classification, particularly book classification, should be estimated. In considering the above Canons, it should first be realized that they are of more or less recent origin, but were undoubtedly based on those fundamental principles which have been illustrated in the Tree of Porphyry for centuries. It is hardly correct to say that the Tree *obeys* the Canons.

On a more detailed examination, we find that the first Canon has little theoretical or practical significance. It is merely a statement of fact, all division proceeds by the addition of differences to the genera and thus *automatically* obeys the rule. This rule does not govern the order of any division.

The practical limitation of the second Canon should be realized. Gradual division with complete modulation of terms is possible only with the classification of specific topics. In any division of the main branches or knowledge, or even subsections of these branches, gradual division with modulation of terms is impossible. Many of the groups formed here bear an equal, or horizontal, relationship one to the other. No attempt, however ingenious, can succeed in producing the ideal arrangement and modulation in the order of the subdivision as suggested in the Canon. The nearest approach to an outline which would show the true relationship between the divisions would be a diagrammatic "family tree"—impossible to indicate conveniently on a printed page. In practice, the need for gradualness, and the extent of the division depend on the purpose of the classification.

The remaining Canons follow closely the fundamental logical rules governing division.

## BOOK CLASSIFICATION

To a librarian *classification* means -

- (1) The printed schedules of a system by which books and entries in a catalogue may be arranged in a systematic order
- (2) The *placing* of books according to these schedules and the arrangement of books or entries in the order of the schedules

### KNOWLEDGE AND BOOK CLASSIFICATION

Knowledge classification<sup>1</sup> may be divided into three broad categories

- (1) Logical
- (2) Philosophical
- (3) Scientific

*Logical classification* may be stated to be a mere exercise in logic, it is frequently division by dichotomy as in the Tree of Porphyry

*Philosophical classification* could be defined as the ground plan on which a philosopher organizes his researches into the ultimate realities, and by which he endeavours to communicate to others his conception of the reason and meaning of the Universe

*Scientific classification* seeks to formulate a scheme of mutually exclusive and exhaustive categories based on the most important characteristics of the things concerned and on the actual relationship between them

The essential difference between knowledge and book classification is that the former arranges knowledge itself, its substances tangible and intangible, while the latter arranges the expression of this knowledge in written or other form. A knowledge classification is abstract, for *ideas* only are arranged, whereas a book classification is concrete and concerned with *ideas* in their *written representation*—a much more complex form. Knowledge classification is based on preconceived ideas, essentially superficial, which depend upon personal or current theories and which a new doctrine might upset. Books are actual indivisible objects and their form and purpose—recreational, educational, and literary—demand special treatment in any attempt to arrange them systematically on the shelves of a library. Here the practical aspect of

<sup>1</sup> See *Encyclopedia Britannica*, 11th ed. Vol 6 pp 461-2

## BOOK CLASSIFICATION

the purpose of book classification comes to the fore, it becomes a method, not only of arranging ideas in the mind, but more essentially of collecting together actual things that are *used together* so that they may be found easily. Thus the essential difference between knowledge and book classification lies in their respective purposes.

In the past, various principles have been used as the basis of this arrangement of books

- (1) Size.
- (2) Orthodoxy
- (3) Colour of Binding.
- (4) Value, format (rare binding, book rarities, etc.)
- (5) Value, literary
- (6) Accession number
- (7) Chronology, date of publication.
- (8) Chronology, by period
- (9) Popularity, Interest
- (10) Press and publisher
- (11) Author and title
- (12) Language
- (13) Geographical place, of publication
- (14) Geographical place, of subject-matter
- (15) Subject, alphabetical
- (16) Subject, systematic

### VALUE OF BOOK CLASSIFICATION

Libraries exist for the provision of books for readers, and their stocks should be so arranged that the service is as prompt and effective as possible. Books are read because their contents interest, provide information, or give pleasure. The majority, excluding fiction, are required on account of their subject-matter irrespective of size, title, or even author, although many readers do, of course, link their reading with a particular author or title.

Many of the earlier bibliographical schemes arranged books according to their size. This characteristic has no relation to the contents of books, and therefore fails in the attempts to fulfil the requirements of most readers. Arrangement by author is more useful, but if books with a definite subject-interest were arranged in this manner, the reader looking



## BOOK CLASSIFICATION

for works on a specific subject would be greatly inconvenienced, he would be compelled to examine many hundreds of books, perhaps fruitlessly. A demand for information on a particular topic would tend to collect, if only temporarily, the books on that topic, and these would be classified by subject over and over again as the need arose.

On the other hand, if books were arranged according to their subject-matter, all borrowers would be reasonably served, those requiring books by certain authors being catered for by an alphabetical array of entries in the catalogue. Classification by subject is essential, if only as a direct economy in collecting books into subject-classes once and for all.

Modern book classification arranges books primarily by subject, but many of the methods noted above are used in the final arrangement on the shelves. In particular, author and title arrangement are employed within the specific classes.

It has been said that "Classification is the foundation of librarianship." This statement is supported by the following accomplishments of a systematic book classification.

(1) Arranges books in an order convenient to the reader and the librarian.

(2) Is essential for systematic, comprehensive, and representative book selection and for thorough revision and withdrawal of stock.

(3) Enables books to be inserted into organized groups, and is a means by which books may be returned to their former relative position on the shelves.

(4) Analyses the contents of books for readers, through the medium of the catalogue, refers the public quickly from the catalogue to the books, and is the means by which the stock may be effectively and clearly guided.

(5) Facilitates book display and the withdrawal of certain books from the main stock for any special purpose. It assists the librarian in making up his collections for the branch libraries or lending centres from the central stock.

(6) Is frequently used as the basis of recording issues and facilitates the compiling of various kinds of statistics, thus reflecting the demand on various sections of the stock.

(7) Through the medium of shelf and stock registers enables thorough and efficient stock-taking to be made.

## BOOK CLASSIFICATION

(8) Can be used for the systematic filing of correspondence, fugitive material, prints, photographs, etc.

(9) Is of value in bibliographical research and the compilation of bibliographies, catalogues, book lists, etc

(10) In all, is a great time-saving device for both the reader and the librarian

A book classification lives or dies by its success or failure in providing this practical convenient grouping of books. The first accomplishment embodies the vital condition. Books should be arranged in such a manner that the needs of the readers, both layman and student, are best served. The majority of readers who require information on a specific topic do so, not because they wish to study that subject in detail from the general to the particular, but because their interest has been momentarily roused by a chance contact with that subject. Public libraries exist to provide the "right book to the right man," or, as Ranganathan puts it, "to every book its reader" with the greatest possible saving of time for both staff and reader<sup>1</sup>. The classification of books should assist in the realization of this ideal.

The schedules of a book classification are maps of knowledge which teach logical thought and have "real value to others than those who serve in a library, in furnishing facts, suggestions, and subject outlines, and in helping to classify information"<sup>2</sup>.

### DISADVANTAGES OF SYSTEMATIC BOOK CLASSIFICATION

No book classification assembles at one point *all* that a reader may require on a topic. In practice, books are scattered according to treatment, nature, viewpoint, and size, and the works of an individual author are separated. It is impossible to arrange topics in a schedule, or books on the shelves, in such a manner that every point of view and all relationships, practical and theoretical, can be shown. For example, Psychology is nowadays linked with Medicine, Education, Logic, Industrial Management, and many other topics. These relations cannot be shown conveniently either in the hierarchy of schedules or in the grouping of books on the shelves. If, say, the books on Industrial Psychology are placed with those on Pure Psychology, the Industries

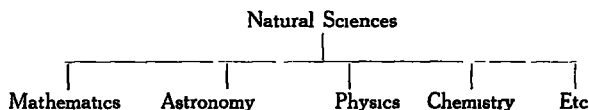
<sup>1</sup> Ranganathan, S. R., *Five laws of library science*, 1931, Chapter V

<sup>2</sup> Mann, M., *Cataloguing and classification*, 1943, p. 47

## BOOK CLASSIFICATION

class would be weakened, and vice versa. By means of entries in the catalogue only may this deficiency be overcome.

Owing to the form of the printed page, it is impossible to show the real relationships that exist between topics within the same class. We are limited to the recognition of *vertical* relationships that might exist, while all *horizontal* relationships must be ignored. It is obvious that in many instances the topics within a class are of equal importance, bearing a relationship to each other as that of "brother to brother," not as that of "father to son," which alone can be demonstrated. For example, the subjects covered by the class Natural Sciences would be shown in relationship more correctly by a form of "family tree," thus



The books on the shelves would need to follow a similar arrangement if they were to be presented in their true order.

A book classification collects only the most readily available resources of a library on a specific subject, and often by its detailed subdivision separates material on a specific subject. Other practical conditions affect the classified arrangement of books and detract from its value. Chief of these are, difficulty of shelving in the order of the schedules, inadequate cataloguing and guiding, incorrect replacement of stock by both staff and readers, untrained staff and lack of assistance to readers and even the sometimes limited intelligence of readers. We assume that the reader understands book classification, but usually "he neither makes nor does he seek sense in the arrangement."<sup>1</sup>

Miss Grace Kelley lists thirteen "elements" affecting the usefulness of book classification.<sup>2</sup>

(1) The changing order of knowledge which makes impossible the static perfection of any classification system.

(2) Only one relationship of many that might exist can be shown in the shelving of books.

(3) The nature of systematic classification, which separates parts from

<sup>1</sup> Kelley, G. O. *The Classification of books*, 1937, p. 17.

<sup>2</sup> *Ibid* Chapter IV.

## BOOK CLASSIFICATION

the whole, and which sometimes results in forced and useless division.

(4) The general obscurity and complexity of any systematic order in comparison with the more easily comprehended orders such as alphabetical or chronological

(5) The tendency of any student or specialist, even the interested reader, to organize a field of subject matter about his own and immediate interest

(6) The contents make-up of books, which, as written and printed, interferes with the satisfactory application of books of any system of classification

(7) The general impracticability of reclassifying old books on any wide scale, as new expansions and re-construction appear

(8) The inadequacy of training in librarianship for preparing students to recognize and cope with many of the difficulties met with in the actual work of classification

(9) Poor and faulty work of the classifier in difficult and unfamiliar fields

(10) The too-frequent tendency to determine classification by the intrinsic subject matter of a book rather than by the use and purpose for which the book was written

(11) Inaccurate and make-shift decisions due to poorly constructed and out-of-date tables of classification

(12) Absence of books and groups of books for various reasons from their position on the shelves, also the unavoidable and marked disorder of books which are used frequently

(13) Long and confusing notation for many specific subjects

## KNOWLEDGE CLASSIFICATION AS A BASIS OF THE SCHEDULES

It has been widely advocated that a book classification should be based on the schedules of a knowledge classification, that

(1) Book classification is a knowledge classification with adjustments conditioned by the physical form of books

(2) Book classification should follow as nearly as possible the "order of things in the order of complexity, of history, or of evolution"

It is maintained that the subject classification of books should be "natural" and should follow the *order of the sciences*. The evolutionary order of the classification of Zoology has been generally accepted as a

## BOOK CLASSIFICATION

perfect example of a natural classification. This arranges the animal kingdom by *structure* and is so formulated that any animal, if it were anatomized, could be placed in one specific class and no other. On the other hand there is no system of bibliographical or knowledge classification, in which every published book could be accommodated in one inevitable or agreed place in an inevitable or agreed order. In addition, it is only in the Biological Sciences that the evolutionary theory, *i.e.* of various types of animals and plants developing by descent from other pre-existing types, can be supported by accepted scientific fact and study. Some doubt still remains as to the exact steps in this developing progress, so that the one so-called evolutionary order is still a matter of dispute. In other branches of knowledge, the meaning of evolutionary order varies, being treated as an historical, simple to complex, complex to simple, or a logical order. In any case a large porportion of knowledge found in books is "man-made." To attempt to trace an evolutionary or a natural order in the divisions of such subjects as Engineering and Politics, or to arrange books on these subjects in such an order is absurd.

It must be emphasized that in the Biological Sciences only is this theoretical order supported, in any way, by accepted fact.<sup>1</sup>

### JEVONS'S STATEMENT

Jevons, a specialist in logical method, stated that the "classification of books is a logical absurdity." This statement has been removed from its context and criticized by those who claim that a book classification is a knowledge classification "plus."

Jevons's criticism was directed mainly at the classified catalogue and at the claims that book classification was merely a development of knowledge classification. He argues that entering under the author's name is the only practical method in a large library, but adds that this should be supplemented by a subordinate subject catalogue and index. The continued use of the dictionary catalogue and the full alphabetical indexes appended to the classified catalogues show that his criticism was based on common sense and a sound knowledge of the objects, difficulties and limitations of the classification of books.

Jevons illustrated his argument by pointing out the difficulty in classifying a book on the "Steam Engine" because of the variety of

<sup>1</sup> *Library World*, Vol 46, 1944, pp. 156-158

## BOOK CLASSIFICATION

its aspects This illustration has been ridiculed on the grounds that Jevons did not realize that although the book is diverse in its treatment, the subject itself, the steam engine, is simple in character, and can thus be classified with ease It is obvious, however, that the steam engine can, as Jevons asserted, be classified from various view-points, and is thus being classified in modern bibliographical schemes As he suggested, the attempt to tie down the schedules of a book classification to those of a natural classification of the sciences must be abandoned, as it has been in all major book classifications

From the point of view of knowledge classification, book classification is a logical absurdity The existing book classifications of any practical value consist of several individual classifications, inconsistent with each other, and bound together only by the notation and elaborate indices to the classes and to the books These schemes fail miserably if judged by the standard of knowledge classifications or, indeed, if assessed by the so-called "Canons" of book classification Yet all are successful to a lesser or greater extent in fulfilling the requirements of a good book classification What, then, should be the basis of the schedules of these practical classifications?

### CONSTRUCTION OF SCHEDULES

As we have seen, even in theoretical classification, the *purpose* is of paramount importance Richardson has said, "Books are collected for use They are administered for use, and it is use which is the motive of classification" <sup>1</sup> The primary purpose of book classification is the arrangement of books in some order convenient to both the reader and the librarian It seems obvious therefore that this purpose should be kept in mind in any attempt to formulate the schedules of a book classification

The classification of books should be based on the actual matter of books, not on ideal theories of universal order Books are written to answer needs, and their function is to present ideas—*ideas in association* This association of ideas is held in common by the authors of the books and by the readers of those books Books naturally sort themselves into usable groups according to this association Any arrangement of books by content should be based on this fact, and this criterion above all

<sup>1</sup> Richardson, E. C. *Classification*, 1930, p. 26

## BOOK CLASSIFICATION

should underlie all book classification. This embodies a subjective approach as opposed to the "natural" method, which demands an objective approach. Each main group of knowledge is itself defined by its subjective line of approach and the relation between topics within these groups is one of specialized association of ideas. Books should therefore be arranged according to the needs expressed in their use, the underlying practical motive being that *books which are used together are collected together on the shelves*.

The principle of subdivision within the main subject groups would, wherever possible, utilize the methods adopted by students or specialists in that subject. History would be divided chronologically within the country, Art by Schools, and so on. In the Natural Sciences, particularly Botany and Zoology, where the subject is studied systematically, the order of the schedules would tend to follow that of scientific method. The pure order of the sciences and the extent of the subdivision may need to be altered according to the need and form of books, for, as Richardson says, a too strict insistence on the schedules following the order of the sciences would often miss the real spirit of book classification. Again a too detailed subdivision might not be practical or convenient for the reader.

These adaptations are more in obedience to the law of convenience than a justification of the scientific virtue or authority of these specialist classifications, for it is found that the literature of these subjects and the study of this literature tend to follow the theoretical order. The most useful order in other classes is prescribed by the fact that readers are accustomed to look for topics under familiar and accepted heads, and that certain subjects are popularly yet not logically related. Here the order becomes one of practical convenience and the best method of subdivision, particularly of minute subdivision, is frequently the alphabetical.

The ideal method of obtaining this subdivision would be somewhat similar to that adopted by the Library of Congress, i.e. based on the actual needs of a comprehensive collection of books. The schedules of the individual classes would be formulated by specialists in these subjects, who would make a general conspectus of each main class and then plan an outline. The books contained under each wide subdivision and how they conveniently group themselves according to use would be

## BOOK CLASSIFICATION

noted. Like books would be brought together, and books which are used together would automatically group themselves in proximity.

As Miss Margaret Mann shows,<sup>1</sup> books *do* classify themselves into rough groups according to their use—she cites as an example a collection of books on Architecture which conveniently separate into groups:

- Architecture
  - General
    - Form.
    - Architectural details
    - Styles of architecture
    - Special classes of buildings
    - Architectural design and decoration.
    - Miscellaneous
    - Books for special classes of readers

Each group may again be divided as minutely as the stock and the need of readers demand. It will be found that books within the class "Architectural details" fall into groups on specific details such as doors, windows, arches, etc. Again, under doors the books will further divide into those on iron doors, wooden doors, glass doors, and so on.

Every class, specific subject, and aspect of a subject would be expanded in a similar manner and the written schedules designed accordingly with places for every need. The finished result would consist of a series of special classifications, each designed by experts with due regard to their specialised knowledge of the subject, yet according to the needs expressed in the use made of actual books—the primary need of book classification. The use made of books does not always demand detailed subdivision in the schedules. It has been said that "classification which subdivides the material so minutely that it tends to group together a very small percentage on a specific subject is too detailed and therefore not practical,"<sup>2</sup> and that "more attention should be given to the sorting-out of books into larger, clearly related, and concrete groups of subjects, a method that will furnish general and reliable assistance to a greater number of people."<sup>3</sup>

<sup>1</sup> Mann, M. *Cataloguing and classification*, 1943, pp. 31-43

<sup>2</sup> Kelley, G. O. *The Classification of books*, 1937, p. 20

<sup>3</sup> *Ibid.*, p. 59



## BOOK CLASSIFICATION

These special classifications, with additions discussed later, must afterwards be linked together to form a complete schedule covering knowledge in general as presented in books. It has been advocated that the main classes should be arranged in an evolutionary order. The literature of classification outlines an astounding fairy story of an absolute order of knowledge, of classes emerging in a certain fixed order, Astronomy preceding Geology and so on, and insists that the main classes of a book classification should follow this order. Briefly it can be said that, according to our present knowledge, such an order does not exist. Various evolutionary orders have been advanced, but no two philosophers agree.

Further, from the point of view of bibliographical classification, it does not really matter in what order within reason the main classes follow one another. Books are used in large classes or in well-defined subject groups with little regard to the class or subject preceding or following it—for example, Sociology is considered primarily as Sociology, a class of books dealing with man's relation to man. While the scheme would not work in a completely satisfactory manner, if the main classes were jumbled haphazardly, a perfect order, with each class and section modulating into the class or section following, is unnecessary, and, in fact, impossible to obtain. Since the main classes have to follow one another in some definite order, that order might as well have some logical justification as not—that is all.

This individuality of bibliographical classification has been advocated for many years by Mr E. Wyndham Hulme, who asserted that the schedules should be formulated with due regard to the particular requirements of books.<sup>1</sup> His arguments were based on

(1) A book is a concrete inflexible collection of a part or parts of our common stock of knowledge so complex that in itself it presents a welter of cross-classification. It cannot therefore be placed conveniently in a philosophical classification which merely arranges ideas to reveal their relationship.

(2) The primary purpose of a book classification is to place books into convenient groups—groups in which the public read and expect to find them.

(3) Book classification is a means to an end. It is a mechanical

<sup>1</sup> *L A Record*, vols 12-14, 1911-12

## BOOK CLASSIFICATION

time-saving device for discovering and presenting facts as found in books. Thus the co-ordination of classes so essential in philosophical classification is a secondary consideration in book classification.

(4) All logical classifications use consistent characteristics. This is made impossible in book classification by the very form of books and the author's intention in writing them.

(5) Book classification must of necessity be to a great extent artificial.

Mr Hulme says, "There is no arrangement in book classification, it is wrought large in the books themselves," it "is an art, like that of fitting a child's puzzle together."

This practical approach is supported by the experience of Mr Charles Martel at the Library of Congress. He points out that "it was recognized beforehand and confirmed over and over again that no amount of preliminary study, consultation, and taking pains in the preparation of the provisional draft [schedules], could produce other than a largely theoretical scheme, more or less inadequate and unsatisfactory until modified in application."<sup>1</sup>

Summarizing, the Canons and other logical rules embody principles applying above all to theoretical classification. They should not be used to assess the practical value of bibliographical schemes. This does not mean that book classification is a direct negation of knowledge classification or the principles underlying it. It has been seen that an ideal book classification would be composed of separate special subject schedules, each evolved by a specialist on the needs expressed in the working of a comprehensive collection of books.

<sup>1</sup> *Library of Congress, Annual Report, 1911, p. 61.*

## SPECIAL FEATURES OF BOOK CLASSIFICATION

THE physical form of books demands certain distinctive additions to the special classifications before the schedules can be termed a book classification. They are

- (1) A Generalia Class
- (2) Form Classes
- (3) Form Divisions.

The following further auxiliaries are necessary before these schedules can be used to arrange a collection of books on the shelves of a library

- (4) A Notation
- (5) An Index

The need and purpose of these distinctive features will be discussed briefly <sup>1</sup>

### GENERALIA CLASS

As its name implies, this is the *general works* class, provided to accommodate such books as encyclopædias, dictionaries, and other polytopical books which cover knowledge in general, or such a portion of it that it is impossible to place them under any one other main head in the schedules. This class is often called the "Waste-paper-basket" class, but is an essential feature of book classification and assists in the convenient arrangement of books. In providing places for works which on account of their physical form do not belong specifically to any other main class, the Generalia class may be considered as a Form class. In its practical form, when subjects considered pervasive of knowledge are included, it cannot be considered as a rigid form class.

The outline of the General Works class in the Decimal Classification is

- 000 General Works.
- 010 Bibliography
- 020 Library Economy
- 030 General Encyclopædias
- 040 General Collected Essays
- 050 General Periodicals

*For more detailed treatment see under the individual book schemes, pp 54-144.*

## SPECIAL FEATURES OF BOOK CLASSIFICATION

- 060 General Societies Museums
- 070 Journalism Newspapers
- 080 Polygraphy Special Libraries
- 090 Book rarities.

*Library Economy, Special Libraries, and Book Rarities are included, it is presumed because of their pervasive nature*

Brown developed Dewey's "pervasive subject" principle and, as the outline below clearly shows, included in this "extra" class of his Subject Classification many subjects that in every other classification scheme find a place in the main schedules.

- A Generalia
  - 000 Encyclopædias
  - 100 Education
  - 300 Logic
  - 400 Mathematics
  - 600 Graphic and Plastic Arts.
  - 900 General Science

This is an entirely novel conception of a "General Works" class, and the inclusion here of many of these subjects is inconvenient for at least the special reader. In comparison, the generalia classes appended to both the Congress and Cutter schemes are severely orthodox.

### FORM CLASSES

These classes, known as "Polite Letters," "Belles Lettres," or the "Literature" class, are provided mainly for such works as volumes of Poetry, Drama, and Fiction.

Here are grouped all books whose primary interest is the form in which they are written—all books which are written and read, not as real contributions to any subject, but as examples of their form. These classes are, in some of their divisions, subject classes, e.g. all works on the "forms," including books of literary criticism, are given a place usually in the first few divisions of the schedules. The arrangement within this class varies in the main bibliographical schemes. Dewey divides first by language, then into the forms Poetry, Drama, etc., and finally chronologically. Within this last grouping, the outstanding and best-known authors are given a definite place, all other writers being grouped as "Minor Writers."

# BOOK CLASSIFICATION

800 Literature : General.	822 English Drama.
820 English Literature	822 1 Early English 1066-1400
821 English Poetry.	822 2 Pre-Elizabethan 1400-1558.
822 English Drama.	822 3 Elizabethan 1558-1625
823 English Fiction	822 4 Post-Elizabethan 1625-1702
824 English Essays.	822 41 Davenant, Sir William
825 English Oratory.	822 42 Etherege, Sir George
826 English Letters	822 43 Crowne, John
827 English Satire,	822 44 Wycherley, William
Humour	822 45 Otway, Thomas
828 English Miscellany	822 46 Congreve, William
	822 47 Vanbrugh, Sir John
	822 48 Farquhar, George
	822 49 Minor writers

Brown adopts a different arrangement in his literature class, which consists of four form groups.

N 000 Fiction.
100 Poetry
200 Drama
300 Essays and Miscellanea

He provides a special number within these groups where all literary works are arranged in alphabetical order of author, irrespective of language and period, e.g. N020 Individual Novelists, N150 Individual Poets; N250 Individual Dramatists, N305 Individual Essayists. If necessary, however, division of any of the broad heads according to language can be made by adding the number of the country from the History and Geography class to the special "National" division supplied.

N202Q5 represents Italian Drama; N202 being the number for National Drama and Q5 the abbreviated geographical number for Italy.

The arrangement of the History, Topography, and Geography classes of bibliographical schemes are based on form as much as on subject. Here the place is the subject, and history and geography the points of view from which the place is considered. In the Decimal Classification such titles as "History of England" and "History of Germany" are placed by country in Class 900 History at 942 and 943 respectively.

## SPECIAL FEATURES OF BOOK CLASSIFICATION

Brown's arrangement is more obvious, each geographical place is given a fixed number in the History and Geography classes, and a number from his Categorical Tables is added according to the form:

U580 Derbyshire, U580 10 History of Derbyshire, U580 33 Geography of Derbyshire

### FORM DIVISIONS

A book on any particular subject may deal with that subject in various ways, from different standpoints or in different forms. It might be an encyclopædia, a dictionary, a periodical, an advanced or elementary treatise, or it might be written as a history, a philosophy, an essay, or other literary form. Books on almost every subject frequently fall into one of these categories. All bibliographical classifications make provision for this "form" in books by the addition of the so-called *form division*.

It will be noticed that many of the terms representing these forms correspond to terms used in the main schedules for specific subjects. There is, however, a distinct difference in their meaning and implication. In the main schedules the terms are used to represent acknowledged subjects from the field of knowledge, places are provided to enable books to be collected conveniently according to use and subject matter. Similar terms used in the form divisions represent either a special way in which a book is written and produced, or aspect from which the subject is viewed. Form divisions are individual to a book classification; they may be considered as the generalia divisions of a specific class or head. In practice, they enable a further, more detailed and convenient grouping of books to be made on the shelves.

Many schemes recognize their generalness of application by converting them into *common subdivisions*, i.e. a constant set of divisions which can be used to qualify any one subject throughout the schedules. In the Decimal and Expansive classifications the following subdivisions are used, with certain exceptions, throughout the whole classification.

<i>Decimal Classification</i>	<i>Cutter.</i>
01 Philosophy, theones	.1 Theory Philosophy.
02 Compendis, outlines.	2 Bibliography.
03 Dictionaries, encyclopædias	3 Biography.
04 Essays, lectures, letters	4 History

## BOOK CLASSIFICATION

<i>Decimal Classification</i>	<i>Cutter</i>
05 Periodicals, magazines	5 Dictionaries
06 Societies, associations, reports.	6 Year Books' Directories.
07 Education, study and teaching	7 Periodicals
08 Polygraphy, collections	8 Societies
09 History	9 Collections

Examples of the application of these subdivisions -

500 Pure Science	LA Sciences (Natural)
503 Dictionaries	LA 5 Dictionaries
510 Mathematics	LB Mathematics
510 5 Periodicals	LB 7 Periodicals.

In the Expansive Classification the point ( ) is a separating device only

Brown considered, quite rightly, that nine viewpoints were inadequate for most subjects<sup>1</sup> and, in formulating the Subject Classification, he omitted all form divisions from the main tables. In place of these he attached a separate list of forms and viewpoints, called the *Categorical Tables*. These consist of 973<sup>2</sup> terms representing forms, standpoints and methods which apply to subjects or topics in the main tables. Each term is given a number, which is preceded by a point ( ), used purely as a separating device.

- .0 Generalia
- .1 Bibliography
- .2 Encyclopædias, Dictionaries
- .3 Text-books, Systematic
- .5 Philosophy and Theories
- .6 Societies, Associations
- .7 Periodicals, etc.
- .8 Collections, etc.
- .10 History.
- .32 Archæology.
- .33 Geography
- .61 Recipes.

<sup>1</sup> See *Decimal Classification*, 13th and 14th edition. Appendix, Table 2

<sup>2</sup> See page 110.

## SPECIAL FEATURES OF BOOK CLASSIFICATION

- 63 Patents.
- 64 Trades
- .65 Education.
- 66 Methods of Teaching.
- .67 Lectures, Commentaries.

A "History of architecture" would bear the notation B300.10; "Bibliography of building construction," B305 1.

The Library of Congress Classification is, of course, equipped with form divisions, but no attempt has been made to make them common to every class, or even common within each class.

In Class H, Social Sciences, HA1, HB1-9, HD101; in Class P, Language and Literature, PN1-9, PN1010; PN1600-09, PN3311; PN4001-3, etc., all represent periodicals

This lack of mnemonic element is by no means a disadvantage; in fact, it is of practical value in the Congress scheme in allowing every possible variation, dictated by the stock of books, to be made

### NOTATION

A book notation is a series of symbols which stands for the names of a class or any division or subdivision of a class, and forms a convenient means of reference to the arrangement of a classification

"The notation is an important *addition* to a classification schedule, it has in no way determined its logic, its scope, or its sequence of development. It furnishes a convenient reference to the arrangement of a classification, the symbol is not assigned until after the schedule has been worked out. It has no more bearing on the preparation of the logic of a classification outline than the chapter numbers of a book have in fixing the themes of those chapters

"In most book classifications the notation is a symbol that stands for either the subject of the book, or the style of writing. Since the notation is a sign translation of the classification, it usually ensures, when it is added to the backs of books, a book arrangement which represents the order of the schedule"<sup>1</sup>

A notation, then, is essential for the practical application of book classification; without notation it would be impossible to apply

<sup>1</sup> Mann, *Cataloguing and classification*, 1943, p. 45



## BOOK CLASSIFICATION

classification to books. As classification is the "foundation of librarianship," it can be said that "notation is the basis of practical book classification."

Summarizing its usefulness. A notation.

(1) Stands instead of the terms of a classification. It is a constant sign or symbol by which we refer to those terms.

(2) Is a guide to the sequence of the tables and "places," a term in the hierarchy of the schedules. The bare names of the subjects give no indication of the relative place of those subjects in the schedules, e.g. the term "Psychology" conveys no clue to its place in, say, the schedules of the Decimal Classification, but the symbol 150 definitely does—the fifth division of Class 100. This is important.

(3) Makes possible the use of the index. The symbol attached to the index entry is the only means of quick reference to the place of the topic in the schedules.

(4) Can be used as a short sign to be written in various parts of the book—on the spine, back of title-page, label, charging cards, etc.—to facilitate the arrangement of books on the shelves, the recording of issues, and other statistical information.

(5) Assures the efficient working of catalogues by referring readers quickly from the entries to the books.

(6) Enables clear and efficient guiding of the library to be carried out.

(7) Facilitates the use of mnemonics.

The notation should be an *addition* to the schedules; it is a piece of apparatus, without which a book classification cannot function. Without the schedule a notation is meaningless. "150" has no meaning apart from being a number, only when coupled to Dewey's arrangement of knowledge is "Psychology" implied. Bliss points out that "the notation, whatever its service may be, does not make the classification, though it may mar it."<sup>1</sup> It is of interest to note that Dewey decided upon his notation first,<sup>2</sup> but this does not in itself indicate that the schedules were conditioned by his choice of symbols.

Thus a notation serves to denote the classes, their subdivisions, and the order in which these are arranged without in any way naming or defining them.

<sup>1</sup> Bliss, H. E. *Organization of knowledge in libraries*, 1933, p. 48.

<sup>2</sup> *Library Journal*, vol. 45, 1920, pp. 151-4.

## SPECIAL FEATURES OF BOOK CLASSIFICATION

### *Types of Notation*

A notation may consist of any symbols, letters, figures, or arbitrary signs to represent terms. There are two types of notation :

(1) *Mixed, i.e.* consisting of two or more kinds of symbols. The Subject Classification has a mixed notation of letters and figures.

A	Generalia
400	Mathematics
520	Calculus.
521	Differential
522	Integral
523	Quaternions
524	Functions.
525	Finite Differences

The Library of Congress also uses a mixed notation of letters and figures

T	Technology
TJ	Mechanical Engineering
248	Mechanical Models
249	Erecting Work
250	Prime movers in general
253	Testing
255	Heat Engines

(2) *Pure, i.e.* consisting of one kind of symbol. The Decimal Classification has a pure notation of arabic figures.

600	Useful Arts Applied Science.
620	Engineering
621	Mechanical Engineering
621 3	Electrical Engineering
621 33	Electric Traction.
621 334	Rolling-stock.
621 3342	Locomotives

The notation of the Expansive Classification is claimed to be pure but, considered as a whole, it is mixed. The main notation is composed of large and small capital letters, while that of the local list, the common sub-divisions, and other special divisions (in the seventh expansion) consist of arabic numerals :

## BOOK CLASSIFICATION

A Period of Domestic Economy would be marked Ro.7 ;

A History of the Greek Theatre Vu32 ,

Navigable Waters in England Sq45

### *The Qualities of a Good Notation*

It is obvious from the use made of a notation that the symbols standing for topics in the schedules should

(1) Convey order clearly and automatically

(2) Be as brief and simple as possible

(3) Be easy to say, write, and remember.

(4) Be flexible, i.e. allow insertions at any point without dislocating the sequence

A collection of arbitrary signs,  $+ \triangle = \square$ , does not fulfil any of these conditions, and must be ignored in favour of more commonly known symbols, such as letters of the alphabet and numerical numbers

That a notation should convey order clearly and automatically is to a great extent essential. The symbols representing a topic should give some indication of the place of that topic in the hierarchy of its division or main class, if not in that of the whole scheme. Both letters and figures have the power of suggesting a sequence, e.g. A before B before C; 1 before 2 before 3, etc. It is doubtful which is the more easily recognized, although on the average a group of figures shows a sequence which is grasped more automatically than letters in combination. The majority seem to recognize 123 as coming before 124 and after 122, more easily than AMP as coming before AMQ and after AMO, but this is a matter of personal opinion.

The brevity of the notation depends upon the base of the notation used. The base of a notation of alphabetical letters is 26 units, of one composed of arabic numerals 10 units. The addition of another symbol to the former gives  $26 \times 26$  places, to the latter  $10 \times 10$  places. With three symbols an alphabetical notation provides 17,576 places against the 1,000 places provided by a numerical notation.

The use of alphabetical symbols makes it possible to spread the large classes of knowledge over a few units of notation, with the result that, on the average, this type of notation is briefer than a numerical one. It is a moot point which of these notations is the more convenient, simple, or easily remembered. There is very little difference between LA,

## SPECIAL FEATURES OF BOOK CLASSIFICATION

Natural Science, in the Expansive Classification, and 500, Natural Science, in the Decimal Classification. It must be remembered, however, that a detailed schedule, one that utilizes close classification, *i.e.* subdivides to the minutest topic, will of necessity demand a longer notation as a whole than a general, or less detailed, schedule. Thus it may be expected that the average length of notation in the Congress schedules is greater than that of the Subject Classification, a much less ambitious scheme.

Bliss states that a notation should be "as short as is feasible"<sup>1</sup>

The ease with which a notation can be *memorized, spoken, and written* is important. In modern libraries the ease with which the symbols can be *typed* is of some advantage. When considering these qualities the mixed and pure forms, noted above, might be contrasted.

It is essential that a notation should split itself clearly into groups which are sayable, thinkable, and writable. The need for the latter quality is self-evident, for the two former less so, yet, taking but one instance, that of a reader going from the catalogue to the shelves, the necessity becomes obvious.

Perhaps the best-known example of a bad notation is that appended to the scheme of Lloyd P. Smith (1882), which combines Roman capital letters, lower-case letters, arabic numbers, and arbitrary signs

Ao	Ecclesiastical History
Ao2	Latin Churches
Ao2IV	Latin Churches of U.S. and Canada

This is bad, not because it is mixed, but because it does not clearly represent a sequence, is not easily carried in the mind, spoken, or written. Different symbols have the same sound, *e.g.* both "2" and "II" are pronounced "two," and are not distinctively "sayable."

Normally, we think in groups of letters or figures, hence a set of symbols which is ugly, has other connotations, does not split up naturally or splits up into too many groups, is bad. Letters do not usually unite, *e.g.* *ab* is "a," "b," not "ab," *xyz* is "x," "y," "z"—except of course when a group of letters forms such a word as "good," "bad," etc. Thus a long pure notation of letters is bad. On the other hand, figures do unite, *e.g.* 10 is "ten," not "one," "nought," 170 is

<sup>1</sup> Bliss, H. E. *Organization of knowledge in libraries*, 1933, p. 71

## BOOK CLASSIFICATION

"one-seventy," not "one," "seven," "nought," and so on

If the notation is lengthy, the symbols have to be split up as an aid to the memory, e.g. the notation 1429654 is better memorized if written 142 9654. The point (.) is used as a splitting device, and adds to the spoken length of the notation, "one," "forty-two," *point*, "nine," etc. Strictly speaking, there is no reason why anything should be said that has no classification meaning. A mixed notation of letters and figures automatically splits itself, thus aiding the mind to grasp and retain it, e.g. AB1234 is "a," "b," *pause*, "one," etc.

So far as this quality is concerned, a pure notation, consisting of either long groups of letters or of figures, is inferior to a mixed notation of the same letters and figures, only when the symbols are short is a pure notation of letters or figures satisfactory. Purity of notation has no practical value in itself. It must be concluded that in most cases a mixed notation is the more convenient for modern book classification which, to be comprehensive, must have detailed schedules with a comparatively long notation. The adoption of mixed symbols in business methods supports this statement to some extent. Their combined use in the numbering of cheques, motor-car registration, and numerous other records is a proof of their distinctiveness, their expansibility, and their relative brevity.

Both Richardson and Bliss recommend the use of a mixed notation. The former states that an ideal notation would use mixed symbols and that "every practical system sooner or later does make use of both letters and figures"<sup>1</sup>

The *flexibility*, *expansibility*, or *hospitality* of a notation is another very important quality. Every schedule of knowledge must, at some time or another, need a certain amount of expansion. This is particularly true of the schedules of a book classification, which must be of a semi-permanent nature. Books are frequently written on recent developments of knowledge for which no place is provided in the existing printed tables. A place must be made for these topics, and it is here that the flexibility of the notation is of paramount importance. A notation must allow the addition of symbols at any point, so that any new topic may be inserted into its relative place in the schedules without depriving the symbols of their sequence. An inflexible notation,

<sup>1</sup> Richardson, E. C. *Classification*, 1930, p. 39.

## SPECIAL FEATURES OF BOOK CLASSIFICATION

if appended to a good schedule, may make the resultant classification obsolete, from the librarian's point of view, in a short space of time. One of the reasons which caused Brown's *Adjustable Classification* (1897) to fall into disfavour was the lack of flexibility in its notation

The notations of the main bibliographical schemes enjoy, to a lesser or greater extent, this important quality. The decimal notation of Dewey is infinitely expansible. Every main class, marked 0-9, is divisible by 0-9, and so on indefinitely

500	Science in general.
540	Chemistry
546	Inorganic chemistry
546 4	Alkaline earths
546 41	Calcium
546 42	Strontium
546 43	Barium
546 432	Radium

The main classes of the Expansive classification are marked A-Z, and each division, or subdivision of this division, is divided by A-Z (small capitals), this gives enormous elasticity

O	Zoology
Ob	Morphology Comparative Anatomy
OBo	Respiratory System
OBOA	Dermal Pores
OBOC	Cœlomic Cavity
OBOCB	Bursae
OBOCD	Dermal Tracheæ
OBOCN	Stewart's Organ

Such is the character of these two notations, that the minutest topic mentioned in the schedules could, if necessary, be divided into ten and twenty-six divisions respectively, and each of these subdivisions given a symbol in perfect sequence with the existing notation

The Library of Congress uses an alphabetical notation A-Z for the main classes; the subdivisions are denoted by a second sequence A-Z, and within these divisions a numerical progression from 1 to 9,999 is used. Gaps are left in the progression for expansion

## BOOK CLASSIFICATION

U	Military Science.
UB	Administration
200	Commanders Generals.
210	Command of Troops Leadership
220-225	Staffs of Armies
230-235	Headquarters, Aides, etc
240-245	Inspection. Inspectors
250	Intelligence.
260	Attaches
270	Spies

When all available blank numbers have been utilized, further expansion may be secured by decimals.

The main classes of the Subject Classification are marked by the letters A-Z, and the divisions of these classes by the numerals 000-999, used arithmetically, in which gaps are left for insertions. Here again, still further expansion could be obtained by the use of decimals.

C200	Human Anatomy and Physiology
201	Anatomy
202	Regional Anatomy.
240	Dissection
	Resurrections See H697
250	Physiology.
300	Pathology

These notations are infinitely expansible in theory only, the length of the notation resulting from numerous expansions might prove a bar to its usefulness in practice.

### *Mnemonic Value of Notation*

A classification is said to have mnemonic value when its notation has the power of "aiding the memory," i.e. when some of its symbols have more or less the same significance wherever they appear in the schedules, or, more correctly, when certain aspects are always represented by the same symbols throughout the schedules.

The simplest example of mnemonics is that of the common form divisions already mentioned.<sup>1</sup> These divisions can be applied throughout the schemes, and once they are committed to memory can be used

<sup>1</sup> See page 35

## SPECIAL FEATURES OF BOOK CLASSIFICATION

and recognized without further reference to the schedules. Note here that it is impossible to regard the Categorical Tables of the Subject Classification as wholly mnemonic, since it cannot be said that nearly 1,000 numbers "aid the memory." Only the most used and popular numbers have mnemonic value.

Another mnemonic manipulation is the use of common geographical divisions in the main bibliographical schemes. In the Decimal Classification the numbers from the history schedule can be added to many subject numbers to signify "place." The history number for England is 942, for Germany 943, and under such heads as 655.4, History of Publishing and Bookselling, we find the instruction "Divided by countries 930-999." Thus

655.442 is the History of publishing in England

655.443 is the History of publishing in Germany

The "9," which signifies "History," is excluded in the building of these numbers.

In the same way, the Expansive Classification has an elaborate Local List consisting of numbers having an invariable geographical meaning. These are for use chiefly in Classes F, History, and G, Geography and Travels, but can be added to any subject number if necessary.

30 Europe

39 France

42 Ireland

43 Scotland

44 Wales

45 England, England and Wales, British Empire

(In Geography, British Empire is 449)

47 Germany

60 Asia

F45 is always English History, G39 French Geography, etc.

The Subject Classification allows for mnemonic geographical division by the addition of the number from the Class O-W, History and Geography. In this class, one number is given to the country, town, etc., and the history and geography of a place are considered as standpoints from which that place is regarded. Brown has provided separate heads for all principal rivers, mountains, and lakes, besides the well-known



## BOOK CLASSIFICATION

towns of the world, all British cities, county boroughs and boroughs. Within the county, Brown first gives the chief town or towns followed by an alphabetical list of other towns and villages.

### U

725	Oxfordshire
726	Oxford
727	Banbury.
728	Chipping Norton
729	Henley-on-Thames
730	Woodstock

The Botany of Oxfordshire is marked E172U725, E172 being Local Floras in the Botany Class, E100

There are many other mnemonic devices, especially in the Decimal Classification, which includes tables in the form of appendices, outlining the various uses of mnemonics in the main schedules. The form marks of the Brussels Classification have considerable mnemonic value <sup>1</sup>

Mnemonic value is a valuable but quite subsidiary quality of a good notation. Schemes have been formulated with the mnemonic principle as their chief characteristic, but all have proved useless in practice. A mnemonic notation assists the memory in minimizing reference to the main tables and index. *Thus concerns the librarian rather than the reader*. In addition, their use reduces to some extent the bulk of the printed tables. In this one respect, the notation is allowed to influence the construction of the schedules, since, in obtaining mnemonic value, each section is tied down to a fixed set of subdivisions.

### Summary

A good notation should be

- (1) Supplementary, i.e. an addition to the schedules
- (2) Composed of familiar symbols which convey order clearly and automatically
- (3) Simple, i.e. easy to say, write, and remember.
- (4) As short as is feasible.
- (5) Flexible, i.e. permit of insertions at any point
- (6) As mnemonic as possible without interfering with the useful subdivision of topics

<sup>1</sup> See page 124

## SPECIAL FEATURES OF BOOK CLASSIFICATION

### AUXILIARIES OF NOTATION

When books have been classified to the most specific detail allowed by the schedules, a number often remain to be grouped under certain heads. Various methods have been adopted to arrange these books within the class number on the shelves, the chief of which are -

- (1) Chronologically by date of publication
- (2) By value of subject-matter (best book first or best book last)
- (3) Numerically by accession number
- (4) Alphabetically by author

The last of these arrangements is generally considered to be the most convenient, although order of accession numbers or chronological order by date of publication enjoyed some popularity in the older libraries. Alphabetical order of authors is the method most easily understood by the public, it saves time, and is always more satisfactory to an orderly mind.

To maintain this author arrangement on the shelves and to individualize further the books, various tables of *Author Marks* have been published. They consist of letters or a combination of letters and figures, which represent the names of authors. When used in conjunction with, and as auxiliaries to, the notation proper, they are called *book numbers*.

The best-known system is that formulated by Cutter and explained in his *Expansive classification first six schemes*. This is an alphabetical table consisting of the initial letter or letters of the author's name, followed by a number so arranged that the earlier letters in the alphabet have the lower numbers. The letters to be used in conjunction with the given numbers are obtained as follows:

If the author's name commences with

- (1) A consonant, the first letter is used, e.g. Holmes H73, Lowell L95, Huxley H98, Macaulay M11.
- (2) A vowel or the letter S, the first two letters, e.g. Queen Anne AN7, Olney OL6, Upton UP1, Semmes SE5, Edwards ED9.
- (3) SC, the first three letters, e.g. Scammon SCA5, Schopenhauer SCH6.

The author mark is added to the classification number. G45B34  
or Beard. Geography of England. This is often written as G45  
B34

## BOOK CLASSIFICATION

In the printed tables all the ordinary names, a list of over twelve thousand, are numbered letter by letter. The tables are of course selective, for there are thousands of alphabetical combinations which can be numbered only approximately. The figures are to be considered as decimals, e.g. the order in use would be H2, H21, H211, H2112, H22, etc. These Author Marks can be applied to any scheme of classification.

In the Appendix to the 13th edition of the Decimal Classification a special series of marks is outlined. These are called the *Old Book Numbers* and were formulated to assist in the alphabetical arrangement of collected biography under the name of the compiler. These numbers are so arranged that all names are translated into the letter A followed by a number. These could be used with the ordinary Cutter Author Marks, which commence with Aa1, without confusion. Examples

A	A11	Ga	A35
Ba	A12	I	A45 e.g. Stricklands Queens of
Day	A25	Na	A64 England, A84
Ea	A28	Z	A99

Miss Kate E. Sanborn revised an early edition of the Cutter marks, but the finished result was more of an independent table than an enlargement of the original scheme. It consists of a three-figured table (with the exception that the letters J, K, Y, Z, E, I, O, U have two figures, and Q, X one figure only) and used the first letter of the author's name only.

Rol	744	Roll	749
Role	745	Rolle	751
Rolf	746	Rollo	755
Rolfe	747	Roman	758
Roli	748	Romani	759

Rolleston would be marked R751 and Romanes R758

Another well-known scheme devised by Mr. L. Stanley Jast, consists of the first two letters of the author's name. Names commencing with the same two letters are distinguished by the figures 1, 2, 3, etc., in the order that the books in question are added to the library. If a book by James is already in the library, and has been marked JA, a book by Jarman coming afterwards would be marked JA1,

## SPECIAL FEATURES OF BOOK CLASSIFICATION

and the next by Jarvis JA2, and so on. The same principle is followed in distinguishing different works by the same author. Obviously the resulting arrangement is only roughly alphabetical.

Another scheme, which gives an approximate alphabetical arrangement only, is that of Merrill. This is a table of 100 numbers corresponding to various combinations of letters commencing authors' names.

Examples

01 A	06 B	46 K	96 Wats
02 Agre	07 Ban	47 L	97 Wha
03 Als	08 Bax	48 Lang	98 Wit
04 Ap	09 Beno	49 Law	99 X-Z

Brown uses an individual series of Author Marks in his Subject Classification<sup>1</sup>

### *Value of Author Marks*

Many librarians contend that the value of these published tables of Author Marks has been overrated, and that they are worthless in practice. The arguments against their use may be summarized:

(1) They are too complicated a tool for the relatively simple purpose of obtaining alphabetical arrangement.

(2) The average notation is complicated enough in itself without the addition of extra symbols.

(3) The more closely the library is classified, the less need for these marks.

(4) The arrangement tends to be an approximate one only; all "Smiths" cannot be separated.

(5) They hide the author's name. Such a symbol as SM57 is a mere jumble, and has no real meaning. It must be transformed, if only mentally, into the author's name, e.g. SM57 signifies Smith. On the other hand SMITH denotes SMITH.

(6) The author's name usually appears in full on the spine of the book. This is sufficient for arrangement purposes.

(7) If a system of marks is required for such broad classes as Fiction and Biography, the first three letters of author's name is sufficient. If a more detailed mark is required, the first four, five, or six letters

<sup>1</sup> See p. 118.

## BOOK CLASSIFICATION

should be used. Even this is preferable to a system which uses the first letter or letters, and then attempts to transcribe the remainder into figures

(8) Readers should not be asked to master this further complication

Both the Library of Congress and Cutter schemes use Author Marks as an integral part of the notation in numbering a series of alphabetical subdivisions

### *Other Auxiliaries*

The introductions and appendices to the main bibliographical classifications mention other auxiliaries to the notation proper Two examples from the Decimal Classification.<sup>1</sup>

(1) *The Biscoe Time Numbers* —The object of these numbers is to obtain a chronological arrangement of books or within subjects They provide for the years 1000 B C to A D 2000

A B C	E 1600-1699
B A D 1-999	S 1920-1929
C 1000-1499	T 1930-1939
D 1500-1599	Z 1990-1999

(2) Special Author Tables used in classifying the works of prolific authors such as Shakespeare, especially where it is desired to group with their works all books about them

- A Bibliography Authorship controversies.
  - B Biography.
  - C Biographic collateral
  - D Higher criticism.
  - E Minor criticism (textual)
  - F Sources, allusions, learning
  - G Miscellany; concordances, societies, etc.
  - H Quotations, tales and plays from, adaptations, etc.
  - I Complete works without notes
  - J Complete works with notes
  - K Complete works in translation.
- For living authors put works complete to date with I, J, K.
- L Partial collections without notes

<sup>1</sup> Omitted in 14th edition

## SPECIAL FEATURES OF BOOK CLASSIFICATION

- M Partial collections with notes  
 N Partial collections in translations.  
 O-Z Individual works.

### INDEX

An index is an alphabetical list of the terms mentioned in the schedule, with the corresponding notation attached. It should include, as far as possible, all the synonyms of these terms, together with minute parts of a subject even if they are not included in the schedules. The index is a labour-saving device assisting in the finding of topics, but must be used as an aid to, not a means of, classification. Its principal virtue is to ensure that a subject will always be classified in the same place in the schedules.

There are two types of indexes

(1) *Specific*, which gives one entry only for each topic mentioned in the schedules, together with synonyms

(2) *Relative*, which enumerates topics mentioned, all synonyms, and to a great extent shows the relation of each subject to other subjects. Perhaps the best example of a full relative index is that appended to the *Encyclopædia Britannica*.

Brown's index is specific, that of Dewey relative. The indexes to the seventh expansion of Cutter's scheme and to the Library of Congress Classification are relative to a degree. In each case an index is appended to the separate classes as published, and, on the whole, refers to those classes only.

*Brown*

*Dewey*

Eggs

Eggs F601	and nutrition	physiol	612 39283
	as food	dom economy	614 12
		hygiene	613.28
	cookery		614 665
	Easter	folklore	398 33212
	ornithology		598.2
	painting medium		751 242
	poultry farming		636 513

Most of the correlations shown in the Dewey Index are entered in Brown's Categorical Tables. Brown believed that the relative index belonged more to cataloguing than to classification.

## BOOK CLASSIFICATION

### *Advantages and Disadvantages*

#### *Relative :*

- (1) Self-explanatory, with alphabetical simplicity.
- (2) Displays under each head the alternative ways in which a subject can be treated, giving the notation for each subhead
- (3) Less likelihood of different classifiers putting the aspects of a subject in different places
- (4) We are informed of the various places in the classification for aspects of a subject, whereas with the specific index we have to ascertain them by other means
- (5) Apt to confuse with so many alternatives for a subject
- (6) Apt to be critical and selective, as all possible viewpoints cannot be shown In Dewey's Index the use of distinctive types shows when the subject is further divided in the main tables
- (7) Bulky for printing purposes

#### *Specific*

- (1) Ideal for theoretically perfect "one-place" classification (a Utopian scheme which will never materialize)
- (2) Less bulky
- (3) Easily reprinted for public use
- (4) Less confusing
- (5) Separates related topics by the accidental alphabetical form of their name

### *Index v. Classification*

The axiom, "So long as a topic is properly indexed it does not matter where it appears in the table of a classification," has obtained wide currency and might be discussed here briefly

This statement breaks every theoretical law of classification, and if it is read as dismissing any kind of order, is unsound when considered from the point of view of the practical application of book classification. In theory, the main object of a classification is to collect like topics and arrange them in their relative position in the hierarchy of knowledge, so that their relationship one to the other is clearly shown. In the practical application of book classification, the element of usefulness and convenience is of primary importance, as the preceding pages have

## SPECIAL FEATURES OF BOOK CLASSIFICATION

shown. A perfect book classification combines these two features as far as is practically possible. If the sole purpose of a book classification were the mere finding of individual books, the axiom would be uncontested, but this is not the case. A book classification, whether it aims at a logical grouping of subjects or at a sequence of books in a useful order, is primarily concerned with *order*, whereas the statement refutes the necessity of even simple alphabetical order.

If, however, the statement be taken to mean that a perfect theoretical order is of little real consequence in a book classification, it may be said to embody a half truth, and cannot be dismissed as of no consequence. The purpose and nature of book classification and the practice of the main bibliographical schemes, in their admitted quest for practical utility, support the axiom to a great extent.

The statement also implies that in a book classification the index is of primary importance. It cannot be too strongly stressed that the index is an *addition*, an auxiliary which assists in the easy working of a book classification. It is possible to classify books without the index, and indeed this method of working should be followed, the index being used as a check only. Brown advises classifiers to use the index and the Categorical Tables when working with the Subject Classification.<sup>1</sup> In general, this can be dismissed as dangerous advice, classifying by the index is apt to lead to ridiculous placings.

### CRITERIA OF A BOOK CLASSIFICATION

(1) It should be as complete as possible, covering the whole field of knowledge as represented in books.

(2) It should be systematic, proceeding from the general to the particular.

(3) It should be formulated with due regard to the needs of books, aiming to provide a place for every type of book.

(4) The arrangement of the classes and subdivisions should be made with constant regard for the main purpose of book classification—the securing of an order convenient to the user.

(5) The terms used must be clear and comprehensive, accompanied where necessary by full definitions, referring to the scope of the headings and equipped with notes for the guidance of the classifier.

<sup>1</sup> See page 118.



## BOOK CLASSIFICATION

- (6) It should be evenly apportioned and should be equipped with alternative locations for certain subjects
- (7) It should be equipped with
  - (a) Generalia and Form classes
  - (b) Form and geographical divisions
  - (c) An effective notation The notation should fit the scheme, not the scheme the notation, and may include mnemonic devices
  - (d) An alphabetical index.
- (8) It should be expansive, both in plan and in notation
- (9) It should be printed in a form easy to handle and consult, which will assist the user to grasp the hierarchy
- (10) It should be revised frequently.

## THE PRINCIPAL SCHEMES OF BOOK CLASSIFICATION

In this Primer, the historical side of the subject is ignored. The older schemes are of no great importance, and should be reviewed rather than studied. They are of interest merely as an historical background, as examples of how ideas have been evolved. If information on any of these schemes is required in practice, it can be found in any one of the many reference books on the subject.

One point of interest in the study of the history of book classification is the gradual development from *fixed* to *relative* location. Many of the older schemes were of the fixed variety, i.e. tiers and shelves were numbered and allocated to certain subjects. The books obtained a number according to their position on a certain shelf, in such-and-such a tier in a certain alcove in a particular room. When any group of shelves became full, the whole system broke down, and necessitated a re-allocation of shelving and reclassification. Another example of fixed location is the method of arranging books in broad classes according to their size and accession number. These methods of arrangement are called *rigid classifications*.

All modern book classifications are relative. The books are numbered according to their subject matter from a set of schedules, and are arranged in continuous sequence or sequences on the shelves. This sequence is maintained so long as the classification is used, no matter what the number of additions to the stock.

The schemes discussed in the following pages are

- (1) The Decimal Classification of Melvil Dewey.
- (2) The Expansive Classification of Charles Ammi Cutter
- (3) The Library of Congress Classification
- (4) The Subject Classification of James Duff Brown.

Briefer mention is made of the Brussels, Ranganathan, and Bliss systems.

The survey of each scheme, which is limited to a brief criticism and mention of the various distinguishing features, is devised on a definite formula :

## BOOK CLASSIFICATION

- (1) Author's intention and ideals
- (2) Outline of schedules, method of subdivision, notation, index, etc.
- (3) Analysis of certain individual main classes, searching, above all, for merits
- (4) General survey

It is suggested that students might adopt a similar method for personal study. The schedules of the schemes and the prefaces, which in themselves might be termed practical codes, should be studied in detail.

Wholesale destructive criticism should be avoided. In particular, the Decimal, Expansive and Subject schemes were the results of serious attempts of experienced librarians to produce practical classifications for the convenient arrangement of books. In each scheme, any seeming weakness for present day needs has been caused more by the nature of knowledge and the actual requirements of books existing at the time of its formulation than by any inherent fault in its fundamental theory, method or purpose.

Students must remember that the real test of the value of a book classification is its practical usefulness, the manner in which it works. Every scheme in use has its good points, these should be recognized and committed to memory.

## THE DECIMAL CLASSIFICATION

The Decimal Classification was formulated in 1873 by the late Melvil Dewey (1851-1931) a graduate of Amherst College, to counteract the "lack of efficiency and waste of time made necessary by the almost universally adopted fixed systems" He attempted to formulate a scheme of the "greatest possible simplicity"—one which would "with its ease of application, its expansibility, and its universal appeal, be adopted in most libraries, thus giving the uniformity which seemed essential" He endeavoured to find a "method that would classify, arrange, and index the books and pamphlets on shelves, cards in catalogue, clippings and notes in scrapbooks, and index any literary material in any form as readily as an ordinary index guide to the proper place in a book" The classification was adopted in the Amherst College Library in 1873, and the first edition was later published in 1876 as a small volume, consisting of 12 pages of introductory matter, 12 pages of tables containing roughly 1,000 heads and 18 pages of index Since that date thirteen further editions have appeared The 13th edition (1932), contains 1,647 pages of tables and index, the 14th edition (1942), 1,927 pages, an illustration of the consistent growth of this scheme. A short and abridged edition for small and growing libraries is published, the 5th. edition appeared in 1936 and was reprinted in 1938 and 1941

The system has been widely adopted, not only in England and throughout the United States, "but in other parts of North America, in South America, in many European countries, and still more distant, in Asia, Hawaii, Philippines, Java, Australia, and Africa, and the Tables are known to have been translated, either wholly or in part, into French, German, Italian, Spanish, Portuguese, Norwegian, Russian, Hungarian, Bohemian, Chinese, and Japanese"

*The Survey of the Libraries of the United States (Vol IV, p 7)*, conducted by the A.L.A. in 1927, shows that the Decimal Classification is used by 96 per cent. of the public libraries and 89 per cent of the college libraries in America, while it has been estimated that in England over 500 libraries use it in the original, or a modified, form.<sup>1</sup>

<sup>1</sup> Thornton, J. L. *Classification in Great Britain. Library World, Vol 40, 1937-38, pp. 155-7*

## BOOK CLASSIFICATION

The Decimal Classification is the oldest of modern bibliographical schemes, and has had considerable influence directly or indirectly on later schemes.

### *Main Outline*

In formulating his outline Dewey said that he gained most stimulus from the *Nuovo sistema di catalogo bibliografico generale* of Natale Battezzati, adopted by the Italian publishers in 1871, and was also influenced by those of Joseph Swartz and W T Harris. Dewey's debt to the scheme of Battezzati and Swartz is not clearly apparent, but the order of his main classes given below bears a distinct likeness to that of Harris

000	General Works
100	Philosophy
200	Religion
300	Social Sciences
400	Philology
500	Natural Sciences
600	Useful Arts
700	Fine Arts
800	Literature
900	{ Geography
	{ Biography
	{ History.

Dewey divided the field of knowledge into nine large classes and appended a general works class, making little, if any, attempt to arrange these classes in anything but an arbitrary order. Many ingenious attempts have been made to discover a theoretical, scientific, or evolutionary order in the arrangement of these classes, but they must be dismissed as pure inventions. It is difficult to understand why Dewey, in such an admittedly practical scheme, separated Philology and Literature. He admits this weakness by suggesting that books comprising these classes could be combined or brought together on the shelves.

### *Subdivision of Classes*

Each main class has nine divisions, each division nine sub-divisions, each of which may be further subdivided nine times and so on.

## THE DECIMAL CLASSIFICATION

Theoretically, division of every subject into just nine parts is absurd; when more than nine divisions are needed, the difficulty is obviated by grouping on single numbers the subjects most closely allied, or by assigning 1-8 specifically to important subjects and grouping minor subjects in 9 as "Other". Since any of these groups may be further subdivided for specific topics as needed, provision is thus made for an unlimited number of subjects. Wherever practicable, heads have been so arranged that each subject is preceded and followed by its most nearly allied subjects. Until Dewey's death the expansion of the classes from edition to edition was carried out by librarians and specialists under his personal supervision, mainly on the framework of the heads of the second edition (1885).

Throughout the subdivisions, however, practical usefulness has been given prior consideration to philosophical theory and accuracy, "the philosophic classifications proposed were so difficult to understand fully that not one person in one thousand could use them practically". Many minor subjects have been placed under general heads to which they do not strictly belong, the rule being to assign these subjects to the most nearly allied heads or where it was thought they would be most useful. In some cases these heads are printed in distinctive type, e.g. 829, Anglo-Saxon, English Literature. In naming the headings, strict accuracy has often been sacrificed to brevity, and familiar titles chosen. Occasionally the order of the division at one place is used at another with slight mnemonic effect. A good example is the division by industry, which is used with success, particularly in Class 331, Labour and Labourers, e.g. at 331.137, Unemployment, 331.13782-899 is divided as 620-699.

In many classes the arrangement is quite arbitrary, and often the choice of headings and the method of subdivision causes confusion. A typical example is Class 100, Philosophy.

- 100 Philosophy
- 110 Metaphysics
- 120 Other metaphysical topics
- 130 Mind and body<sup>1</sup>

<sup>1</sup> In the 14th edition, 130 reads *Physiologic, abnormal and differential psychology. Metapsychology*

## BOOK CLASSIFICATION

140	Philosophical systems, and doctrines.
150	Psychology
160	Logic   Dialects
170	Ethics
180	Ancient philosophers
190	Modern philosophers

The exact difference in meaning between 140, Philosophical Systems, and 180-190, Ancient and Modern Philosophers, and to a lesser extent between 130, Mind and Body, and 150, Psychology, is difficult to ascertain. The usual practical distinction is outlined in both the *Introduction to Library Classification* and the *Code for Classifiers*. In the 13th edition, an alternative schedule based on current thought combines the material in 130 and 150 at 159.9 a number unused in the earlier editions. This special schedule is omitted in the 14th edition.

In spite of his "practical usefulness" claim, Dewey has not used an alphabetical array of topics so frequently as might have been expected. In many instances this arrangement would have been more convenient than the arbitrary order selected. Dewey himself realized the value of alphabetical order, and suggests in his Preface that this sequence may in many cases be used in place of the arrangement in the printed tables. He instances 546.3 where all Metals could be arranged alphabetically, or as a wider alternative, all chemical elements arranged in one alphabetical order under 546. The schedules for 780, Music, are an example of inconvenient arbitrary arrangement. A suggested remodelling of this class is given by L. R. McColvin and H. Reeves in their *Music Libraries* published in 1937.

In some sections the subdivision is based solely on American practice and requirements, e.g. 328, Legislation, 329, Political Parties, 352, Local Government, 370, Education and 720, Architecture. The arrangement of these sections is thought to be inconvenient for British libraries and "decisions" or local adaptations are often made.

The subdivision of classes 570-590, Biological Sciences, was modelled on the scientific classifications of a special school of thought in the 'eighties. Unfortunately this school was soon superseded so that the classes as a whole are now obsolete. In these schedules many scientific terms are used without definition, making quick reference rather difficult.

## THE DECIMAL CLASSIFICATION

They are also expanded in very great detail, and it is asserted that they abound in redundant places so far as the classification of books is concerned. Many of these divisions will undoubtedly remain unused in the arrangement of books for many years to come, if not for ever. A similar criticism is often levelled that some sections, such as that for the Y M C A, are subdivided out of all proportion to their importance. These assertions are beside the point, the fault lying really with the production of the Decimal Classification and not the detail of subdivision, nor should the detail of the subdivision at any such head be used to indicate that the notation is badly allocated. There is no reason why the subdivision of any section should not be carried out to the millionth place, if a user of the scheme requires it. Other users can ignore these sub-divisions. The real criticism should be based on the fact that many sections which should be subdivided are not, if they were, the schedules would become too bulky. All special subdivisions, such as Y M C A, should be relegated to appendices or to supplementary publications, which could be supplied on demand to anyone interested. It is interesting to note that in the 14th edition this particular section and others, "which seem to be needlessly elaborate," have been drastically reduced.

### *Notation*

Dewey tells us he decided upon his notation first and obtained "absolute simplicity by using the simplest known symbols, the arabic numerals as decimals, with the ordinary significance of nought, to number a classification of all human knowledge in print." Dewey did not adopt the decimal notation without extended experiment and thought as to its advantages and disadvantages in comparison with a notation of letters or a mixture of letters and numbers. He says that he immediately dismissed roman numerals as being too cumbersome, and finally favoured arabic numbers for the following reasons

- (1) They are written more quickly, and—
- (2) With less danger of mistake
- (3) They are easier to remember than letter combinations
- (4) It is difficult to catch the eye with such combinations as p f.p., and they are more difficult to keep in mind
- (5) Some combinations of letters are odd or ridiculous, e.g. H.O.G.



## BOOK CLASSIFICATION

The notation is thus a pure one, consisting of arabic figures used decimally. A "three-figure minimum" is used consistently, *e.g.* Useful Arts is always marked 600 not 6 or 60. Engineering 620, not 62; Biology 570, not 57, and so on. This system makes for simplicity of the notation, for the average reader to whom the symbols have an ordinary numerical meaning only. The first three figures are used as a numerical guide to the order before further decimal arrangement has to be consulted. Three figures approach the ideal for this purpose, four figures would appear to be too many, two figures too few.

The notation is infinitely expandable. If there is no blank number available, any new topic is combined with the nearest allied head, or when important enough, a place can be made by the addition of another decimal. Any division after the three figures is accommodated by use of the digits 1-9 after a decimal point.

600	Useful Arts	Applied Science
610	Medicine	
611	Anatomy.	
611 1	Circulatory System	

Further subdivision is obtained by the continued use or additional symbols used decimally

611 1	Circulatory System
611 11	Pericardium
611 12	Heart
611 122	Left Heart
611 123	Right Heart
611 124	Ventricles.
611 1242	Right
611 1245	Left

In many instances, the apportionment of notation is poor, in fact, it may be stated that the main weakness of the scheme is caused by the bad allocation of the notation for the needs of a present day comprehensive stock of books. The same compass of numbers is assigned to Philosophy as to Science, as much to Fine Art as to History, and so on. Many important branches of modern knowledge have no place in the first hundred divisions, *e.g.* Mechanics, Mineralogy, Hygiene, etc. Many minor subjects are allowed to occupy as much notational space as major

## THE DECIMAL CLASSIFICATION

ones, e.g. 670, Manufactures, has only one of its nine heads subdivided, while 940, History of Europe, spreads over fifty pages of the schedules. Other important topics of recent introduction are handicapped with inordinately long numbers, e.g. Broadcasting 621.384193. This disproportion results in overcrowding and in lengthy notation marks. This is the direct result of Dewey's refusal to alter his allocation of notation after the second edition in 1885. Many subjects which were important in Dewey's day have not developed as rapidly as others, while others, then comparatively unimportant subjects, have to-day become highly technical and specialized branches of knowledge. Dewey, of course, can hardly be held responsible for this unforeseen development of knowledge, only for so framing his schedules in the early editions that no real revision has been possible.

Bliss states that decimal notation is simple only under the simplest conditions, and again that Dewey's notation is far too long and complicated, pointing out that in many classes a notation of even 14 figures is needed, e.g. 612.01446222032 for Cryoscopy of Gastric Juices. This array of figures is, of course, useless as an effective notation for practical purposes. The need for such minute division would never arise in the average public library, in fact few libraries have occasion to use many of these detailed schedules. In the expansions carried out in the 14th. edition, the responsible Committee seems to have attempted to keep the notation within reasonable limits.

### *Generalia Class*

This class is a mixture of subjects and forms

- 000 General Works
- 010 Bibliography
- 020 Library Economy.
- 030 General Encyclopædias
- 040 General Collected Essays.
- 050 General Periodicals.
- 060 General Societies, Museums
- 070 Journalism, Newspapers
- 080 Polygraphy. Special Libraries
- 090 Book Ranties.

## BOOK CLASSIFICATION

Specific subjects are included here because of their so-called pervasive nature and their generalness of application. The main divisions are used as a basis for the common form divisions.

### *Form Divisions*

Dewey uses a series of nine common subdivisions of form. These, with minor alterations, are used with the same meanings throughout the scheme where specific instructions appear, but in practice may be added to any number, if the extent of the literature on that subject demands it.

- 01 Philosophy
- 02 Compends
- 03 Dictionaries
- 04 Essays
- 05 Periodicals
- 06 Societies
- 07 Study and Teaching
- 08 Collections
- 09 History.

These divisions are more or less a specialized replica of the main heads of the General Works class. The numbers are added to the subject

614 Public Health

614 03 Dictionary of Public Health

If the subject number already ends in 0, the 0 from the form divisions is dropped. Zoology, 590, thus a Zoological Magazine would be marked 590 5, not 590 05. In some cases the form divisions take a slightly different form, and the numbers are given to aspects more applicable to the specific subject. Under 510, Mathematics, 510 8 is given to Logarithmic and other tables, not to Collections, under 520, Astronomy, 520 1 refers to Astrology, under English Poetry 08 and 09 alone remain as in the above table. There are a few places in the schedules where the form divisions cannot be applied, notably under the History of a country, e.g. 942 05 stands for English Tudor History, not a periodical of English History. It has long been realized that the number of common subdivisions provided is inadequate. In the 12th edition (1927), Table 2 in the Appendices lists 49 viewpoints which could be accommodated by the existing nine divisions. In the 13th and 14th editions, Table 2 lists

## THE DECIMAL CLASSIFICATION

in 4 pages, complete with a separate index, a selection of the common viewpoints, forms, and subdivisions of the Classification Decimale of Brussels. These may be used, if required, at any head throughout the scheme.

### *Geographical Divisions*

Geographical subdivision is provided by the use of the numbers given to the topographical arrangement of History, 930 to 999, where every continent, country, and division of a country is given a number. In addition to the geographical divisions in the History class, Dewey provides Period Divisions, which are placed at those numbers, usually occupied by the common form divisions in other sections of the classification:

900	History
940	Europe
944	France
944 01	Early History
944 02	Capet and Valois
944 03	Bourbon
	Etc
944 3	Champagne Île de France. Lorraine
944 38	Lorraine (Alsace-Lorraine)
944 381	Meuse
944 382	Meurthe and Moselle

The chief use of these topographical numbers is to subdivide Geography and Travel, which Dewey places at 914-919, but wherever the note 'Divide by countries like 930-999' appears—as it does throughout the schedules—the divisions may be applied. Occasionally no directions are given in the main tables, but the subject is placed in Table 1 in the appendices, which is a full list of topics in the scheme where geographical subdivision is permissible.

To obtain geographical subdivision, the number following the initial "9" which represents "History," is added to the subject number.

Geography of England	914 2	Geography of France	914 4
Geology of England	554 2	Geology of France	554 4

## BOOK CLASSIFICATION

The separation of Geography and Travel and the History of a country has always been a subject for complaint and criticism, and many librarians have evolved methods of bringing these two subjects together on the shelves. It is found that Dewey's arrangement, while suited for books written on the larger geographical units which usually deal separately with the aspects of History and Travel, proves less convenient for books dealing with one specific place, which more frequently deal with that place from several aspects.

Two methods have been suggested.

(1) Ignore 910 and subdivisions, and place books with the History numbers, adding some sign to distinguish and allow for separate sequence, e.g. History of Surrey, 942 21, Rambles in Surrey 942 21 T

(2) As (1), but substitute T for 9, thus Rambles in Surrey would be T42 21 or T422 1

### *Language and Literature*

Although separated in the order of the main classes, these two classes are closely linked. It is difficult to understand why Dewey separated these two classes, for in the Preface he suggests that they should be brought together on the shelves. In both classes, the primary division is linguistic, the numbers from 400 Philology being used to divide 800 Literature into Literatures.

Philology		Literature	
400	General	800	General
410	Comparative.	810	American
420	English · Anglo-Saxon	820	English
430	German and other Teutonic	830	German
440	French · Provençal		Etc.
450	Italian : Rumanian		
460	Spanish Portuguese		
470	Latin and other Italic.		
480	Greek and other Hellenic.		
490	Other Languages		

The order of these main divisions bears some resemblance to that of the Geographical divisions.

In Philology, English Philology is the only division worked out in full, all other languages being subdivided mnemonically in the same way:

## THE DECIMAL CLASSIFICATION

420	English Philology.	430	German Philology.
421	Orthography	431	Orthography
422	Etymology Derivation	432	Etymology Derivation.
423	Lexicology Dictionaries		Etc
424	Synonyms Homonyms		
425	Grammar		
426	Prosody		
427	Dialects Patois Slang		
428	School Texts.		
429	Anglo-Saxon	439	Other Teutonic Languages

Similarly with all other languages

The divisions of this class have considerable mnemonic value, for in addition to this internal use of the mnemonic element and the use of the linguistic numbers in Literature, they are used frequently throughout the schedules for obtaining further subdivisions.

220 5, Versions of the Bible, is subdivided by Language; 220 52 is English Bible, 220 53 German Bible, and so on At 572 8, Races, under 572, Ethnology, and at 299, Other non-Christian religions, the linguistic divisions are used to subdivide according to race.

Within the Literatures in Class 800, are eight common divisions of "form" Taking English Literature:

820	English Literature
821	English Poetry
822	English Drama
823	English Fiction
824	English Essays
825	English Oratory.
826	English Letters.
827	English Satire and Humour.
828	English Miscellany.

Every literature, except Greek and Latin, is divided in a similar manner, e.g. French Poetry is 841; French Essays 844; German Poetry 831.

Within these groups the arrangement is chronological:

821	English Poetry.
821 8	Victorian period, 1837-1900.

## BOOK CLASSIFICATION

821.81	Tennyson, Alfred
821.82	Browning, Elizabeth Barrett.
821.83	Browning, Robert
821.84	Rossetti, Dante Gabriel
Etc.	
821.89	Minor Writers

In most libraries, these author numbers are ignored, the arrangement under periods being limited to an alphabetical array of individual authors. Fiction is also separated from this class and arranged alphabetically by author in a special sequence

The basic arrangement of this class is practical and convenient for serious students of literature, although it might be said that, especially in the classics, the study is rather of an author than of a literary form. In criticizing this class one writer says, "Classification into forms, poetry, drama, essays, etc., was not really necessary, and was hardly anything but confusing. Dewey separates the works of a single author, if they are under different forms of literature. Thus the works of Victor Hugo would appear in 841, 842, 843, and 846."

### *Biography*

Dewey supplies a separate class for Biography at 920. Here all collective and individual biography are collected and grouped with certain variations, according to the main schedules, e.g. *Lives of Chemists* are placed at 925.4; *Lives of French Philosophers* at 921.4 (921 is subdivided by language numbers)

The rule is to give each biography the number of the subject which it best illustrates, or to the student of which it will be most useful. Dewey recommends that more than four figures should seldom be used, e.g. *Lives of Pianists* should be placed at 927.8, unless in a large special collection, when they may be separated as 927.86. *Lives* which cannot be placed under any one head are arranged alphabetically by Biographee under 920; or under 920 for men and 920.7 for women.

Opinions differ as to the best treatment of biography, and the following alternatives are allowed by Dewey and are widely used:

(1) Arranged in alphabetical order of biographee, or author of a collective biography, under 920 (or 92). Instead of 920, the symbol B

## THE DECIMAL CLASSIFICATION

is often used, with little advantage, as it has no place in the sequence of the decimal notation

(2) Distributed as far as possible throughout the classes according to subject interest, *e g* Life of Wagner at 782.2 Biographies with no definite subject interest are arranged alphabetically by biographee under 920

(3) When "9" is used to indicate history of a special subject, biography is placed at the "92" subdivision, *e g* 780.9, History of Music, 780.92, Biography of Musicians Further arrangement is by biographee, or by the author in the case of a collective work, *e g* Life of Wagner, 780.92 W4G

### *Index*

The relative index appended to this scheme was the first example of this type of index appended to the schedules of a book classification. Dewey claims that it is the most important feature of his scheme, he says "My claims for the Amherst plan were not based on the way it is filled out, but upon the central idea of a complete index referring in the simplest possible manner to a scheme of classification," and "the most essential complement of the index is the Tables of Classification"

Arranged in alphabetical order, it aims to include all topics expressed or implied in the main tables together with every likely synonym. It does not include all names of countries, towns, animals, and plants, and in many instances the full subdivisions are not included. To save undue bulking of the index, topics that are further subdivided in the main tables are entered in black face type, and superior figures are used to refer to the special tables in the Appendix which follows the index. In the 14th edition the index has been entirely recast and standardized spelling used. The new index is prefaced by a detailed introduction which should be studied carefully. A contrasted example from the two indices mentioned

13th. edition		14th. edition	
Scandinavia		Scandinavia	
<sup>4</sup> languages	439.5	<sup>1</sup> church	284.7
<sup>5</sup> literatures	839.5	<sup>4</sup> languages	439.5



## BOOK CLASSIFICATION

philosofers	198	philosophers	198
lives	921 8	biography	921 848
protestants	284 7	union fin. economics	332 43
sheep	636 372		

### *Mnemonics*

Dewey makes full use of the mnemonic principle. In many classes, the subdivisions of one topic are used in the arrangement of another, *e g* under 621 7, Mills, Factories, etc., 621 72, Woodworking Shop may be subdivided as 621 71, Drafting Room. The principal mnemonic features are

- (1) Form Divisions
- (2) Geographical Divisions
- (3) Language Divisions

The application of these mnemonic devices is assisted by the use of four special Index tables, which follow the index to the scheme. In the 14th edition these consist of

- (1) Geographical divisions
- (2) Uniform divisions (Brussels form marks) with special index
- (3) Languages and Literatures
- (4) Philological divisions.

The appendix also includes a special abridged schedule of 582, Systematic and taxonomic botany, from the UDC, equipped with a special index giving both the Brussels and Dewey notations

### *Survey*

It is paradoxical that the very popularity of the Decimal Classification should be responsible for most of the criticism against it to-day. Constant use in hundreds of libraries has brought to light many faults and inadequacies. These are apt to blind the student to the many good points and general efficiency of the scheme as a whole. An appreciative view which is essential to the proper understanding of Dewey, may be yielded by an enquiry into the reasons for its adoption and success against rival schemes.

Published at a time when librarians were beginning to appreciate the need for close classification of books, it was the first *relative* scheme to appear. At the time of its introduction into this country, the tide was

## THE DECIMAL CLASSIFICATION

turning in favour of open access—a system which makes essential the adoption of a systematic classification scheme. Neither Brown in England, nor Cutter in America, although formulated as improvements on the system, proved very serious rivals to a scheme already well established. The Subject Classification reflected the views of one man—in some cases, views of such individuality as to evoke suspicion—whereas the Decimal Classification was compiled, or at least expanded, by specialists. Moreover, the Subject Classification remained unrevised for many years, and was inadequate in its published form for fair-sized libraries. Cutter's Expansive Classification may have become a challenger of some merit, but it remained unfinished, unrevised, and little used. The Library of Congress Classification was of later advent and it is only recently that its outstanding qualities have received wide recognition. The fact remains that the Congress scheme was designed for a particular library of unusual size and content, and, as it stands at present, is unsuitable for wide-spread adoption in public libraries.

All these more recent schemes owe much to the stimulus created by the advent of the Decimal Classification, for Dewey was the first to show the effectiveness of the systematic classification of books. He was the first to utilize a system of decimals in the notation, to use to the full the principle of mnemonics, and to append a relative index to a scheme of book classification.

Fundamental to the success of Dewey was the author's guarantee that, after the 2nd edition (1885) no change would be made in the existing allocation of notation, and also the existence of an organization for revision and publication. Moreover, it was the first scheme to be issued and maintained in a compact, printed, easy-to-handle form. This assurance of permanence bestows that stability without which any library classification scheme is severely handicapped. On the other hand, for the present day needs, the scheme suffers from being tied down to a main order of classes and subsections and to an allocation of notation influenced by thought and published books towards the end of the last century. The now obsolete Natural Science class, the placing of such subjects as Spiritualism<sup>1</sup> and the instances of the poor allocation of notation already noted are good examples of this weakness.

Several sections of the scheme, notably divisions of 700 Fine Arts,

<sup>1</sup> *Another place is provided under Religions at 289.9*

## BOOK CLASSIFICATION

remained undeveloped through many editions. After much delay this section has been greatly expanded in the 14th edition and now covers 147 pages. Such examples of contradiction between aims and accomplishment are common in Dewey. These lapses form the principal weaknesses. Originally it was a practical scheme which, despite the inconsistencies of the initial order of classes, had stood the test of use in Amherst College Library. It was directly based on experience of the subjects on which books and articles were written. Dewey, emphasizing the practical aims of the scheme, declares in his introduction, "No theoretical refinement has been allowed to modify the scheme, if it would detract from its usefulness or add to its cost." Succeeding editions, however, have been expanded by specialists with perhaps less regard for the needs of existing literature, so that "refinements" of little value in the practical arrangements of books have been included. As one writer has recently said, the result was "a succession of editions padded out with minute, little used, and often poorly done, amplifications of isolated sections, ill advised amplifications that have thrown the basic decimal scheme all out of focus"<sup>1</sup>

Despite this, Dewey remains on the whole an essentially practical scheme. The subdivision, more often than not, exhibits excellent, utilitarian method.

An examination of 640, Home economics, Domestic science, reveals much that is best and typical in Dewey. The division is worked out with constant regard for the literature of the subject and the law of convenience. The continual notes for the guidance of classifiers are an excellent feature. Notice should be taken of the summaries at the beginning of classes and also the general setting out and variation of type which go far to simplify the printed schedules.

It has been shown that the notation of Dewey on occasion reaches an unwieldy length. On the other hand, it must be remembered that in general, medium-sized libraries the average length of notation used is comparatively short. Moreover, arabic numerals are not only of universal significance, but are the simplest method of conveying order. The reduction of the number of main classes to ten and continued subdivision by tens, no matter how ridiculous to the logician or impractical to the librarian, has a great appeal as a simplifying measure to the reader.

<sup>1</sup> Rider, F. *Melvil Dewey*, 1944, p. 36

## THE DECIMAL CLASSIFICATION

Dewey's notation is a major factor in the success of the scheme. So far as mnemonic features are contributions to the efficiency of book classification this notation provides them.

One disadvantage for British libraries which perhaps has been exaggerated, is the extent of the Americanization of the scheme. The use of American terminology, and the frequent arrangement of a class by American Institutions or according to American requirements are to be expected in an American scheme, and in practice it has been found that the inconvenience to British libraries is not marked.

Dewey looked upon his relative index as the most successful feature of the scheme. The English user, however, is occasionally irritated by the omission of common English terms, probably indexed under their American equivalents, and by the "simpler spelling" used throughout the whole scheme until the 14th edition. In this edition, the index has been completely reset and standardized spelling used.

Probably the greatest factor attending the success of the scheme is the ease with which it can be modified by an intelligent librarian to suit the needs of his own community and library. Most libraries have adjusted the schedules in some way, expanding individual topics or grouping various aspects of a subject in one place when desirable, as in the case of special collections. The notation, too, lends itself to modification, being adapted to the number of books. By these means, the utility of the scheme has often been considerably enhanced for the needs of a particular library, but it must be noted that Dewey did *not* recommend such alterations, although indicating in his Preface that certain modifications have been found practicable. The very popularity of Dewey is argument for its adoption and ensures its continued success. Use in hundreds of libraries provides a basis for uniformity, much to be desired, and also gives definite proof that, despite its faults, the scheme *works*.

The revision of the Decimal Classification rarely passed beyond expansions of existing heads with their original notation. The 13th edition broke away from previous practice by including an alternative schedule for Psychology at 159.9 (previously unused) in place of the generally considered obsolete and confusing divisions at 130 and 150. The 14th edition omits this schedule with certain other "supplementary tables which have lost their importance and use." It is not indicated whether the 159.9 expansion will be published as a "supplement."

## BOOK CLASSIFICATION

The separate publication of this alternative schedule, preferably based on the notation 150, together with other expansions of subjects, as used by, say, the Brussels Institute, would prove a practical solution to many of the problems of the scheme. If the Decimal Classification were published class by class with the addition of a cumulative index to the whole, the problem of revision would become less acute. Special libraries would be able to obtain only those parts which their collections needed, and the average cost of production and purchase would be lowered. As in the Library of Congress Classification, each section could be prefaced by an explanation of the application and special problems of each class. Other features which could be easily and usefully applied to Dewey are the alphabetical subdivision of topics where a logical arrangement no longer serves, and the fuller definition of terms.

In 1933, the editorial work of this classification was taken over by the Library of Congress and since that time Dewey numbers have appeared with the corresponding Congress numbers on all cataloguing cards issued by the library. The 14th edition was published under the supervision of a committee of eight specialists with C. J. Mazney as Editor and M. W. Gatchell as Associate Editor. In addition to the expansion of existing heads, chiefly in Class 300, 700 and 900 (including a skeleton schedule for World War II at 940.53-54, based on 940.3) reductions and omissions have been made for the first time. The Index has been reset and standardized spelling used both here and in the new expansions. It is indicated that "simpler spelling" has been retained from courtesy to the memory of Dewey and the implication is that this will be dropped from future editions when the schedules are revised and reset for printing.

With this new spirit on the editorial side there is no doubt that the Decimal Classification will continue to hold its present unrivalled position as a library classification scheme, although drastic remodelling may soon be unavoidable.

## CUTTER'S EXPANSIVE CLASSIFICATION

Charles Amn Cutter (1837-1903), librarian of Boston Athenæum, author of *Rules for a dictionary catalogue*, formulated the *Expansive Classification* in response to numerous requests from other librarians for a simple classification for the arrangement of various-sized libraries. Cutter considered that the Dewey scheme was not suitable for all libraries and advanced this scheme as an improvement on the Decimal Classification. The *Expansive Classification* was based on his experience in the arrangement of the collection of over 170,000 volumes in the Boston Athenæum and began to appear in print in 1891. Cutter was of the opinion that libraries needed a more or less detailed system of classification according to the extent of the stock, and the whole plan of his classification was based on this contention.

In its final form the *Expansive Classification* was to consist of seven separate classifications, each of progressive fullness, the first being very simple, and arranged for libraries of very small stock, and the last being very complex, and intended for libraries with stocks of some millions of volumes. The first scheme consisted of a few wide classes, with no subdivisions, this was developed in successive tables by gradually increasing the number of classes and sub-classes, and by bringing additional letters into the notation. Cutter recommended that, when a library is small and growth is likely to be slow, one of the earlier classifications should be applied and the others brought into use consecutively as the library develops. It is from this adaptability of the classification to accommodate a growing stock that it gets its name "Expansive". The first six expansions were completed, and Cutter was engaged on, and had nearly completed, the seventh expansion at the time of his death. The finished classes of this last expansion were published in folded sheets equipped with individual indexes, but with no covering introduction. Unfortunately, the work was not completed, and the *Expansive Classification* in the seventh expansion, perhaps one of the most interesting of book classifications, is neglected and almost unused.

The published part of the seventh expansion differs so greatly from the first six expansions in its schedules, notation, and indexes that it

## BOOK CLASSIFICATION

is virtually a separate individual classification. This last expansion will be considered most fully in the following notes. The Expansive Classification is being used in a modified form in twenty-four American libraries<sup>1</sup> and in one British library.<sup>2</sup>

### *Main Outline*

The first classification consisted of eight classes.

- A Works of Reference and General Works
- B Philosophy and Religion
- E Historical Sciences
- H Social Sciences
- L Sciences and Arts, Useful and Fine
- X Language
- Y Literature.
- YF Fiction

For preference, Historical Sciences to be subdivided into

- E Biography.
- F History.
- G Geography and Travels.

In the fifth expansion the whole of the notation A-Z is used for the first time, the outline in the sixth expansion is

- A General Works
- B Philosophy and Religion
- C Christianity and Judaism
- D Historical Sciences
- E Biography
- F History
- G Geography and Travels.
- H Social Sciences.
- I Sociology
- J Civics, Government, etc
- K Legislation.
- L Sciences and Arts
- M Natural History.

<sup>1</sup> A L A *Survey of libraries in the U.S.* 1927, Vol. IV, p. 7.

<sup>2</sup> *Library World*, Vol. 40, 1937-38, pp. 155-157

## THE EXPANSIVE CLASSIFICATION

- N Botany
- O Zoology.
- P Vertebrates
- Q Medicine.
- R Useful Arts, Technology.
- S Constructive Arts, Engineering and Building
- T Fabricative Arts, Manufacture and Handicrafts
- U Art of War.
- V Athletic and Recreative Arts
- W Art, Fine Arts
- X Art of Communication by Language
- Y Literature.
- Z Book Arts

The main classes are said to follow the "inverted Baconian" order, but this claimed relation has little real meaning. Bacon's main classes were so wide in scope that almost any outline of the main sections of modern knowledge could be shown to bear some relation to them. Cutter claimed an evolutionary or historical order, saying that, although the Expansive Classification was designed, not as a classification of knowledge but of books, he believed that a "maker of a scheme for book arrangement is most likely to produce a work of permanent value if he keeps before his mind a classification of knowledge."

### *Subdivision of Classes*

The author claims to have carried out an evolutionary arrangement in the subdivision of many of his classes. He explained the principle underlying this subdivision:

"The Expansive Classification follows the evolutionary idea throughout, in natural history putting the parts of each subject in the order which that theory assigns to their appearance in creation. Its sciences proceed from the molecular to the molar, from number and space, through matter and force, to matter and life; its botany going from cryptogams to phanerogams; its zoology from the protozoa to the primates, ending with anthropology. The book arts follow the history of the book from its production (by authorship, writing, printing, and binding), through its distribution (by publishing and bookselling), to its storage and use in libraries, public and private, ending with its description



## BOOK CLASSIFICATION

that is, bibliography, suitably divided into general, national, subject and selective Economics, too, have a natural order—population, production, distribution of the things produced, distribution of the returns, property, consumption

"Similar examples of logical, or, if you please, natural arrangement, are putting Bible between Judaism—to which the first part, the Old Testament, belongs—and Christianity, whose sacred book forms the second part, putting Church History between Christian Theology and History; putting Statistics between Geography and Economics, since it might have gone in either, putting Music between Recreative Arts and Fine Arts"<sup>1</sup> On the other hand, Cutter frequently provides a simple alphabetical order of topics within classes, using the first letter or letters as the final symbols, *e g*

Ww	Furniture	WwD	Desks
WwB	Beds	WwS	Sideboards
WwC	Cabinets.	WwSO	Sofas
WwCH	Chairs	WwST	Stoves
WwCL	Clocks	WwT	Tables
WwCO	Coffers		

Cutter's method of subdivision is sound, not so much because it is based on a logical order, but because it is practical and convenient, being based to a great extent on the needs of an actual collection of books A good example from Class B, Philosophy and Religion

Bm	Moral Philosophy	Ethics
BmF-BmI	Special Theories	
BmK	Special Problems	
BmL-BmY	The Individual (his conscience, ideals, duties, etc )	
Bn	Virtues, crimes, etc (arranged alphabetically)	
Bo	Society; classes of individuals (arranged alphabetically).	
Bp-Bpx	Family Ethics	
Bpy	Social Morality	
Bq-Bqx	Social Ethics.	

The aid of specialists was sought in the formulation of various schedules, *e g* the Mathematics schedules in the seventh expansion were formulated by Richard Bliss, Librarian of Richmond Library,

<sup>1</sup> *Proceedings of the 2nd International Library Conference, 1897, pp 84-8*

## THE EXPANSIVE CLASSIFICATION

Newport, Rhode Island, the Medicine schedules by Dr G E Wire, when medical librarian of the Newberry Library. In both cases, apart from minor alterations, Cutter was responsible for the notation only. Throughout the schedules of these classes the original notation as appended by the specialists are given on the right-hand side of the page. An example of the subdivision of the Medicine class showing the two notations:

Q MEDICINE		
QK	Ophthalmology	QK
QKA	Diagnosis	QK11
QKAO	Ophthalmoscopy	QK12
QKB	Accommodation Errors.	QK13
QKC	Artificial Eyes	QK14
QKD	Binocular Vision	QK15
QKE	Blindness	QK2
QKEC	Colour Blindness.	QK21
QKF	Glasses.	QK22
Etc		

Frequent definitions of varying fullness are supplied throughout the schedules

### *Notation*

The classification is equipped with a flexible, brief, and fairly simple notation. It consists of capital letters, with small capital letters representing the divisions, both used alphabetically. Although widely quoted as pure, it is more correct to designate this notation as mixed. The complete notation contains capital letters, small capital letters and figures (used in the form divisions, the local list, and for special subdivisions in the seventh expansion). The use of large and small capital letters is confusing and might easily have been avoided, although it is doubtful if these different forms are, or were, used in practice. Heads from the tables of successive classifications show the gradual expansion of the schedules and of the notation:

1st, 2nd	3rd	4th
H Social Sciences (including Sociology)	I Sociology.	I Sociology.
		IB Crime.
		IK Education.

## BOOK CLASSIFICATION

<i>5th. and 6th</i>	<i>7th</i>
<b>IK</b> Education.	<b>IP</b> Pedagogics, Teaching
<b>IL</b> Means of Education	<b>IPC</b> Curriculum.
<b>IP</b> Pedagogics (6th only)	<b>IPD</b> Discipline
<b>IU</b> Schools.	<b>IPDC</b> Corporal Punishment
<b>IX</b> Colleges.	<b>IPE</b> Examinations
<b>IY</b> Special Schools	<b>IPH</b> Hours of Study, Vacations, etc
<b>Iz</b> Classes of Persons Educated	<b>IPi</b> Inspection
	<b>IPM</b> Marking
	<b>IPO</b> Organization
	<b>IPt</b> Truancy
	<b>IQ</b> Normal Schools (with local list)
	<b>IQR</b> Teaching as a career

Note the occasional initial letter *mnemonics*

In many instances the notation is badly allocated Subordinate subjects have frequently a shorter symbol than the more general subjects, and thus the sequence of the schedules is not obvious The division, Algebraic Constants LBS, has a shorter mark than the wider head, Exponential Mathematical Tables LBLI, Electric Engineering at TDZ is subordinated to Steam Engines at TD In the seventh expansion, the notation, which runs to four and five figures, without the addition of form, geographical, or other special subdivision marks, can no longer be considered simple or effective, *e g* VAUYU Umpires (sport), KAXKO Cross Examinations (Trials) The absence of a "splitting device" militates against it as a convenient practical tool, for the solid phalanx of letters, avoided in the notations of other schemes, does not convey order simply, and is not easily grasped by the mind An examination of the schedules shows that Cutter's claim that an early expansion of the scheme could be first adopted, and subsequently a later expansion used without alteration of records, is not entirely justified, *e g* Musical Instrumentation is marked L, V, V, Vv, VWA, VWX, VWT successively in the seven expansions

### *Generalia Class*

This class is a strictly orthodox general works class and is somewhat similar in outline to that of the Decimal Classification.

## THE EXPANSIVE CLASSIFICATION

A	General Works.
Ad	Dictionaries
Az	Encyclopædias.
Ar	Indexes.
Am	Museums, General.
Ap	Periodicals, General
Aq	Quotations.
Ar	Reference Books.
As	Societies, General

No "pervasive" subjects, such as Library Economy, are included here.

### *Form Divisions*

Cutter appends common form divisions, which can be used throughout the schedules with an invariable meaning. In the first expansions, the following eight divisions were used

D	Dictionaries	P	Periodicals
E	Encyclopædias	Q	Quotations
I	Indexes	R	Reference.
M	Museums.	S	Societies.

These are a replica of the main divisions of the Generalia class, and the first letter of each division is used as the distinguishing symbol, giving additional mnemonic value. In the sixth and seventh expansions, these common viewpoints became nine in number, and were given a numerical notation, as it was thought that the symbols of the former set were apt to be confused with those of the main notation.

- .1 Theory.
- 2 Bibliography.
- 3 Biography
- .4 History.
- .5 Dictionaries.
- .6 Handbooks, etc.
- .7 Periodicals.
- .8 Societies.
- 9 Collections.

The point (.) is a separating device only. These numbers may be added to any class number. Zp Libraries, Zp 7 The Library Journal, etc.,

## BOOK CLASSIFICATION

Zp 8 The American Library Association, etc , Y39 French Literature,  
Y39.9 a collection of extracts from French writers

### *Local List*

This is a list of countries and places for use chiefly in Class F, History and Class G, Geography and Travels. An attempt has been made not merely "to put together countries that subjoin on the map, but to arrange them in such order that those which have most to do with one another shall not be widely separated." Such an attempt, of course, can be only partially carried out.

21	Australia	30	Europe
211	West Australia	31	Greece and Rome, "Classic"
212	North Australia	32	Greece
213	Alexandra Land	35	Italy
214	South Australia.	36	Rome, city, kingdom, etc
215	Queensland	38	Switzerland
216	New South Wales	39	France
217	Victoria	40	Spain

History of England F45, Geography of England G45

Travels in S America G98, History of Brazil F99

The tables are not expanded in great detail, quite often the country only is assigned a number. A division for any place not mentioned can be made by adding the initial letter of the place name followed by one or two figures from Cutter's Author Mark Tables. Cutter advocates that single towns and villages should be arranged in alphabetical order but distinguished by the addition of 0 to the Local List number, e.g. under 44, Wales, single places would have the notation 440 followed by the initial letter or letters. Thus 440Sw would represent Swansea.

In the subdivision of some sections Cutter does not use the Local List, but supplies special geographical subdivisions in the main schedules, e.g. under B Philosophy, Oriental Philosophy is BA, not B60, Chinese Philosophy is BAC not B66; Indian Philosophy is BAI not B69.

In the seventh expansion, Cutter has provided period divisions both in the History and Geography classes, the numerical notation in the History class is used with a decimal significance.

## THE EXPANSIVE CLASSIFICATION

G46 Netherlands	F46 History of Netherlands
1 Early	461 Early History
2 1437-1507.	4612 Under Burgundy (1437-76).
3 To 1566	4613 Under Austria (1476-1507).
4 A-Z since 1813	4614 Under Spain (1507-66)
	462 Kingdom of the Netherlands (1813-30)

In this expansion, Cutter outlines various alternatives for the arrangement of these two classes

### *Language and Literature*

In the sixth expansion, the language and literature of a special country are collected in Classes X and Y by the corresponding number from the local list

X Language	Y Literature.
X35 Italian Language.	Y35 Italian Literature.
X39 French Language	Y39 French Literature.

Within the literature of a country provision is made for division according to form by the addition of initial capital letter

Y39d French Drama	Y35d Italian Drama.
Y39f French Fiction	Y35f Italian Fiction.
Y39p French Poetry	Y35p Italian Poetry.

Cutter suggests that in most British libraries it would be more convenient to group all English and American literature at the main head, instead of at Y45, and place Literature in General at Y11. He says that, as almost all the books on Language and Literature in small libraries, and a very large part in all libraries, relate to the English language and literature, an exception is made to the rule that the general precedes the particular in order to secure the shorter class mark for the larger class.

The language and literature classes in the seventh expansion are very elaborate. The schedules of Arts of communication by language, which includes Book Arts, with the index, number 141 pages. This class abounds in alternative arrangements. Within Literature and Book Arts the order may be Philology, Literature and Books, or Philology, Book Arts, Literature, in this order at X, Y, and Z respectively. Again under Language and Literature, the individual languages and literatures can

## BOOK CLASSIFICATION

be arranged according to a schedule based on the affinities of languages or alternatively by the Local List

Xk	Greek Language
Xkv	Modern Greek, Romain
XL	Latin.
XN	Italian
Xo	Spanish
Xp	French
XRP	Polish.
XRR	Russian
Xr	Swedish
XU	Danish
Xv	German, Modern High German
Xx	Anglo-Saxon or Old English
Xy	English.

Thus *letter* arrangement may be used in the Literature class, Italian Literature YN, French Literature YP, and so on

The literature class can be further subdivided by special tables, which include Time Lists and Form Lists. Thus, French Literature may be divided into periods :

YP	French Literature
YPAA	To 1400
YPAB	1400-1499
YPAD	1500-1599 Renaissance
YPAE	1600-1715 Classical period
YPAF	1715-1789 18th Century

or into forms :

YPD French Drama, YPF French Fiction; YPN French Ballads, YPP French Poetry; YPQ French Wit and Humour.

There are other special tables, which should be studied carefully in the actual schedules

### *Biography*

The inclusion of Biography in the common form divisions enables biography to be split up according to subject interest, *e.g.* Biography of Criminals Is 3. Cutter, however, states that he himself did not use

## THE EXPANSIVE CLASSIFICATION

this division, " preferring to put all biography in E," where individual biographies are arranged alphabetically by biographee Collective biography limited as to subject may be arranged in a number of ways :

- 1 Split up according to subject, *e.g.* KL 3 Lives of lawyers.
- 2 Placed in class E

(a) In an alphabetical list by the English names of the classes,

*e.g.*

E A Artists  
E B Botanists  
E E Eccentric persons.  
E En Engineers

(b) In the order of the classification by the class letters, *e.g.* :

E B Philosophers  
E CB Biblical persons  
E G Travellers  
E L Scientists

Cutter justifies this collection of biography—" the reason is that a considerable number of lives do not illustrate any class ; others illustrate several subjects, and one does not know under which to put them ; and, moreover, it is a great convenience to know that a life is sure to be in one definite class, and not to have to pause to think in what class the man belongs " He makes an exception for the lives of artists, which he says generally contain so many reproductions of their works, that they are better placed with the subject On the other hand, under certain heads, Cutter makes provision for the inclusion of biography under subject, ignoring the use of the form division 3, *e.g.*

Vt	Theatre	
VTA	Collections	Biography
VTAA	}	Single lives of actors and managers.
to		
VTZ		

arranged alphabetically, *e.g.* VtG193 Life of Gamck.

### *Index*

The first six expansions, when published together in 1893, were equipped with a cumulative alphabetical index to subjects showing



## BOOK CLASSIFICATION

the various notations in the six expansions for the respective subjects  
This index was to some extent relative.

Christ, Atonement	B, <sup>3</sup> C, <sup>4</sup> Cc, <sup>5</sup> Cf, <sup>6</sup> CGP
Christ, Divinity of	B, <sup>3</sup> C, <sup>4</sup> Cc, <sup>5</sup> Cf, <sup>6</sup> CGB
Christ, Life of	B, <sup>3</sup> C, <sup>4</sup> Cc, <sup>5</sup> Cf, <sup>6</sup> CGG
Christ, Offices	B, <sup>3</sup> C, <sup>4</sup> Cc, <sup>5</sup> Cf, <sup>6</sup> CGM
Christ, Person of	B, <sup>3</sup> C, <sup>4</sup> Cc, <sup>5</sup> Cf, <sup>6</sup> CGH
Christ, Second Coming of	B, <sup>3</sup> C, <sup>4</sup> Cc, <sup>5</sup> Cf, <sup>6</sup> CHI

The numbers against the notations point out to which of the six expansions that particular notation belongs. Thus <sup>5</sup>Cf shows that the notation Cf is used in the fifth expansion for the Life of Christ.

The sections of the seventh expansion that have been published are equipped with a separate relative index, which it was proposed to amalgamate into one complete index when the full tables were prepared. As it stands, however, the separate indexes are relative to one class only. An example

Tax Collectors	KAZL
— direct	HTL
— incidence of	HT
— income	HTG
— indirect	HTL
— local	HTI
— progressive	HTEP
— property	HTE
— school (law)	KPQ, Kv86
— single	HTE
— special, <i>see</i> Taxes	

To avoid repetition of the note "The Local List is to be used when necessary," Cutter employed the sign  $\tau$  (an inverted L) as seen in the entry above for Tax, local.

The index entries are also frequently annotated with lucid explanations: Under Instructive games VPV, in the Index appended to Recreative arts, "i.e. those designed to teach History, Biography, Literary History, Bible History, etc. For War games *see* VCY. May be in Class I. Add to VPV the class mark of the subject taught."

## THE EXPANSIVE CLASSIFICATION

### *Mnemonics*

Mnemonic value is obtained by the use of:

- (1) Common Form Divisions
- (2) Local List
- (3) "Initial" letter as notation in subdivisions

### *Survey*

Most critics have praised this scheme. Richardson has said that it is "a really scientific work of high value" Brown assessed it as "one of the most scientific and complete modern schemes of classification"; while Bliss says,<sup>1</sup> "Here lies the library classification that has brought into service some of the most valid principles and in the historical situation has best served as a stepping stone to the future. High respect and gratitude are due from those who have followed." In principle it is one of the best of modern bibliographical schemes, it is the work of a librarian assisted by specialists, the outline and subdivisions combine practical and theoretical principles to a remarkable degree, it has been formulated on experiment in an actual library, it is flexible, and frequently allows the use of alternatives, the notation has considerable mnemonic value, the existing sections of the seventh expansion show that it was abreast of knowledge when published and equipped with excellent terminology and very full directions, giving valuable practical advice to classifiers. Many of its best features have been used in the formulation of the Library of Congress Classification and the alternative location method, as noted in the Literature Class, has been used and developed by Bliss in his Classification. The scheme has some grave disadvantages which have prevented it from being of real importance in the field of practical bibliography. It is incomplete and out of date, *e.g.* in the seventh expansion we find

Sz	Aerodromes
SzB	Balloons.
Szc	Dingible.
SzP	Aeroplanes
SzQ	Kites

All parts are not worked out with equal fullness—one section from the

<sup>1</sup> Bliss H E *Organization of knowledge in libraries*, 1933, p. 241.

## BOOK CLASSIFICATION

fifth expansion might have to be used and another from the sixth. The full notation of letters is often very cumbersome. It lacks a complete index, is out of print and difficult to obtain, and is comparatively untuned.

Miss Margaret Mann suggests<sup>1</sup> that the interest to students lies in the facts

- (1) It has been used in developing later classifications and must therefore take its place as a real contribution to library literature, even though incomplete
- (2) From the historical point of view the scheme cannot go unrecognized, as it was conceived by a scholar and a librarian whose work has done much to put library science on a high plane

<sup>1</sup> Mann, M. *Cataloguing and classification*, 1943, p. 68

## LIBRARY OF CONGRESS CLASSIFICATION

The Library of Congress, Washington, was established in 1800 by an Act of Congress as a legislative library and was housed in the Capitol until 1897, when it was moved to its own premises which constitute the largest, most ornate and most costly library buildings in the world

The first stock of 964 volumes and 9 maps was arranged by size This arrangement remained in force until 1812, by which time the stock had increased to 3,076 volumes and 53 maps In the catalogue of the library published in 1812, the collection was divided by subjects into 18 chapters, and then arranged by size In 1815, following the destruction by fire of the greater part of the collection, the library of Thomas Jefferson was purchased, and his classification, with 44 divisions, adopted. Jefferson catalogued and classified this collection, and in 1815 published the *Catalogue of the Library of the United States* in which the books were arranged alphabetically within the 44 groups. This scheme was used, with modifications, throughout the nineteenth century, until in 1899 Dr Herbert Putnam became librarian, and decided to reorganize the library, including an entire re-classification By this time the library had grown to immense proportions, the stock totalling over 2,000,000 volumes, and had become of national importance.

After careful consideration, it was thought that neither of the existing bibliographical schemes, Cutter and Dewey was suitable It was decided to formulate a special scheme, utilizing the best of all existing classifications, to meet the individual needs of the Library and to be governed by its actual contents Dr Putnam has said that the classification was devised from a comparison of existing schemes and with special consideration of the particular conditions in the Congress Library, the character of its present and probable collections, and its probable use. The special nature of the library influenced the whole structure of the scheme, its order and the extent of its subdivision The main collections of books cover Bibliography, Public Law and Legislation, Fine Arts; and American Local History, Biography and Genealogy These and other collections of national importance are each housed in a separate department or building Besides its research and other services for members of Congress and government departments, the

## BOOK CLASSIFICATION

library offers facilities to serious scholars and acts as a national library, standing at the head of a recognised inter-library loan system with college, university, state, municipal and other libraries. Mr D C Mearns, Reference Librarian, Library of Congress, has stated that in June, 1942 the collections included 6,609,387 printed volumes and pamphlets, 1,472,251 maps and views, 1,619,280 volumes and pieces of music, 561,779 prints and so many manuscripts that a numerical estimate was not feasible <sup>1</sup>

The schedules of the classification, equipped with a relative index, were published separately by the Government Printing Office, Washington, at a low price. The finished result is a series of special schedules, more minute than any other in print.

No national library has attempted such a gigantic task, which has been successfully carried out only by the number of specialists and the ample funds available. The scheme is being used in over two hundred libraries throughout the world, including one hundred and sixty American<sup>2</sup> and ten British libraries. It appears to be gradually growing in favour in British university libraries <sup>3</sup>

### *Main Outline*

The outline of the main classes as revised to 1934

- A General Works Polygraphy
- B Philosophy Religion
- C History Auxiliary Sciences
- D History and Topography (excluding America)
- E-F America
- G Geography Anthropology
- H Social Sciences Economics Sociology
- J Political Science.
- K Law.
- L Education
- M Music
- N Fine Arts

<sup>1</sup> *The Americana annual*, 1943, p 429

<sup>2</sup> *Library of Congress, Annual Report*, 1937, p 241-244, 1941, p 235.

<sup>3</sup> *Library World*, Vol 40, 1937-38, pp 155-157.

## LIBRARY OF CONGRESS CLASSIFICATION

- P Language and Literature.
- Q Science
- R Medicine
- S Agriculture Plant and Animal Industry
- T Technology
- U Military Science
- V Naval Science
- Z Bibliography and Library Science

This seems to be based on that of Cutter, but the full outline is purely arbitrary and in no way scientific, historical, or evolutionary. The classification is composed of a series of special classifications with no connexion between them, except the accidental one of their alphabetical notation. It is noticed that the letters I, O, W, X, and Y have not yet been used, thus providing at least five main units of notation, for future development of the main classes, although, as Bliss objects, future expansions are most likely to concern existing classes, not new main classes.<sup>1</sup>

### *Subdivision of Classes*

The actual procedure of making the schedules was roughly as follows: the classifiers made a general conspectus of each class and planned an outline. They noticed what books were contained under each subdivision, how they conveniently grouped themselves together, and designed the schedules accordingly, providing places for every need. Special collections of books in the library were classified by scholars and specialists in those classes of literature.

The classes, divisions, and subdivisions have therefore been developed according to the use made of a huge collection of books, and with little heed to any outside theoretical consideration. Certain sections still remain to be developed, e.g. Epigraphy is as yet a bare outline. Many of the schedules, particularly Natural Science, naturally reflect the specialized knowledge of the formulators, in this way combining the theoretical side of the subject with the practical purpose of the scheme. Throughout the scheme, as may be expected from the nature of the library, special emphasis is given to American topics.

The general principle of arrangement within the classes or under subject is as follows:

<sup>1</sup> Bliss, H. E. *Organization of knowledge in libraries*, 1933, p. 268

## BOOK CLASSIFICATION

(1) General form divisions, such as Periodicals, Societies, Collections, Dictionaries, and so forth

(2) Theory, Philosophy.

(3) History

(4) Treatises

(5) Law, Regulations, State Relations

(6) Study and Teaching

(7) Special subjects and subdivisions of subjects, progressing from the more general to the specific, and as far as possible in logical order.

This sequence is not strictly adhered to, being quite arbitrary, and is an indication only of the main groups into which the average class has been divided. The resulting order is roughly historical, and wherever possible the subjects are arranged according to their chronological development. In other branches of knowledge the order is from theory to application. This method of division is not consistently carried out to its logical conclusion, as, say, in the Subject Classification.

The schedules provide for the most minute grouping of subjects, and, in many instances, a marking for individual titles is applied for the arrangement of special collections or the works of prolific authors. Good examples of this are found in Class B, Philosophy, and Class P, Literature. Under JC (Theories of State) there is a special table at JC 177-178 for the works of Thomas Paine, in which over thirty places are provided for editions of a single work. The separate classes published are made complete by the inclusion of certain phases of a subject which may preferably be classed with other groups. The same topic is often included in several classes, but brackets are used to show when the entry is secondary, making the schedules especially useful for special libraries. Frequent use is made of references to related topics in other classes, and definitions of the meanings of the terms are freely employed.

A feature of the subdivision is the use of alphabetical arrangement where the hierarchical order has no further usefulness. This method is effectively used in many classes, e.g. Philosophy, Literature, and Science.

QE831	Insects
832	Subdivisions, alphabetically.
C6	Coleoptera.

## LIBRARY OF CONGRESS CLASSIFICATION

D6	Diptera
H4	Hemiptera
.H9	Hymenoptera.
L5	Lepidoptera
N5	Neuroptera
O7	Orthoptera
T8	Trichoptera.

In such classes as Philosophy, Social Sciences, Political Science, etc., the association of subjects by country, rather than by topic, is made a feature. The Philosophy class is an excellent example of the severely practical outlook of the classifiers. Here under Modern Philosophy the main arrangement is roughly as follows: by country, by period and then the notation is allocated to individual philosophers arranged alphabetically. This arrangement is justified in the Preface to the class: "It seemed that in this class a desired degree of consistency or uniformity of treatment was not attainable in the distribution of the works of a particular philosopher by subject, owing to lack of issues of such works in separate form, the only existing or available editions in many cases forming part of collections, collected works, or combinations of two or more special works. It was thought best, therefore, to keep together the resources of the library on a given writer, providing for the representation of special works under the subject or subjects by filing reference entries in the shelf list under Logic, Metaphysics, Psychology, Ethics, and more specific subjects, as the case might be. Although duplicating to a certain extent the arrangement of the alphabetical catalogue, this appeared to be the only method by which great irregularity could be avoided."

Many classes are equipped with special tables and directions for subdividing the general tables more minutely. These special tables are individual to the one subject to which they apply and can seldom be used for the subdivision of other topics. For example in Class J, Political Science, there are special tables for marking Official Documents, consisting of a letter and a figure used after a point (.) as A2—Early schemes of legislative documents. Full prefaces are appended to many of the published classes, giving the user a valuable insight into the method underlying the development and subdivision of the schedule.



## BOOK CLASSIFICATION

### *Notation*

The notation is a mixed one of letters and arabic numerals, and as a rule each division is numbered from 1 to 9,999 according to the detail of the division. The symbols used are -

(1) For classes and main divisions, single capital letters or double capital letters.

(2) Divisions and subdivisions; these letters combined with numerals, used integrally, in ordinary sequence

Q	Science.	QC	Physics
QA	Mathematics	1	Periodicals, Societies, etc
QB	Astronomy	3	Collected Works.
QC	Physics	5	Dictionaries
QD	Chemistry	7	History
QE	Geology, Palæ- ontology, etc		Etc
QH	Natural History	51	Laboratories
QK	Botany	53	Instruments and Ap- paratus
QL	Zoology	61	Tables
QM	Human Anatomy	71	Essays, Lectures, etc
QP	Physiology	73	Force and Energy
QR	Bacteriology	75	Miscellaneous Specu- lation

Expansion is provided for by gaps in the sequence of the notation, by the use of decimals, if necessary, and also by the addition of a lower-case letter in conjunction with the existing capital letters in the notation. The resulting notation has an enormous elasticity, but is far from brief

TX556 M5 Milk Testing  
 QL444 D3 Lobsters  
 QD181 C1 Carbon  
 SF489 L5 Leghorn (Poultry)

It must be remembered, however, that the scope and detail of the schedules demand a comparatively lengthy symbol. Considered as a whole this notation is almost excellent, it is flexible and as short and simple as is possible, but has little mnemonic value

## LIBRARY OF CONGRESS CLASSIFICATION

### *Generalia Class*

This is an orthodox bibliographical general works class, very similar to that of Cutter, and provides places for polygraphical books only.

- A General Works
- AC Collections Series Collected Works
- AE Encyclopædias.
- AG General Reference Works (other than encyclopædias).
- AI Indexes
- AM Museums
- AN Newspapers
- AP Periodicals
- AS Societies Academies
- AY Yearbooks Almanacs
- AZ General History of Knowledge and Learning.

The symbol denoting the subdivision is frequently the first letter of the name of that subdivision

### *Form Divisions Geographical Divisions*

There are no *common* form or geographical divisions as are provided in the other main bibliographical schemes. These divisions are repeated throughout the individual classes of the scheme, with little or no attempt to give them mnemonic significance. This results in an inflation of the main tables, which already number several thousand pages, but tends to make clear every variation that may be applied and also ensures the independence of each class, a valuable feature for special libraries. This lack of mnemonics is often of practical value, for some subjects are better equipped with a different set of subdivisions designed to suit that subject. On the other hand, the frequent use of alphabetical order in the subdivision gives a certain amount of "memory value."

Under Class TS Manufactures, Periodicals are denoted at various places in the schedules by the symbols, TS1, TS200, TS540, TS1228, TS1772, TS1784. In the majority of cases, however, this particular form division occupies the first or second subdivision of a subject.

One of the most general series of form divisions in use is:

1. Periodicals
2. Yearbooks

## BOOK CLASSIFICATION

3. Congresses.
5. History.
6. Local.
7. Directories, Lists
- 8 A-Z Individual Societies arranged by Cutter's marks.

Throughout the classification, geographical division is made in one of the following ways

(1) By a series of numbers assigned to a place in the regular sequence of the notation, *e.g.* under SH, Angling, SH461-601 are assigned to America, SH603-643 to Europe; SH651-667 to Asia. Each continent is divided in some detail, *e.g.* SH531, North Carolina; SH533, North Dakota, SH535, Ohio, SH537, Oklahoma

(2) By leaving a set of numbers blank and referring the classifier to a special table where the countries are listed with numbers that fill the blanks, *e.g.* Under SB821-923, Economic Entomology Documents, is the note "By country Table I". This table lists countries of the world from 21-123, *e.g.* 52 is Peru. Documents of Economic Entomology of Peru takes the number SB852.

(3) By additional decimal number, *e.g.* under GB561-568, Valleys subdivision by "Other countries" is made by the use of a special decimal table. Examples

69	Asia
7	China
71	India and Ceylon
72	Indo-China
73	French Indo-China
74	Indonesia
75	Dutch East Indies
76	Philippine Islands

(4) By subdividing alphabetically, *e.g.* SH101, Fish Culture in other European countries, A-Z; SH101 F5, Fish Culture in Finland

The most obvious geographical tables are those appended to Class G, Geography, H, Social Sciences; T, Technology, and U-V, Military and Naval Sciences. These tables are arranged alphabetically

## LIBRARY OF CONGRESS CLASSIFICATION

Alabama	A2	Colorado	.C6
Alaska	.A4	Connecticut	C8
Arizona	.A6	Dakota (Territory)	D2
Arkansas	A8	Delaware	.D3
California	C2	Distict of Columbia	D6

These numbers are used after a point ( ) for dividing subjects whenever the directions "Local, A-Z" or "By countries, A-Z" appear in the schedules. Even these tables are not mnemonic, for in different tables the letters have different meanings; thus, N8 may mean Norway, North Carolina, or Nova Scotia according to the subject to be subdivided.

The minuteness of the geographical division is dependent on the subject to be divided and its importance from the point of view of literature. In some cases subdivisions to the continent is sufficient, while in others, such as in Class D, History and Topography, the most minute geographical head has been given a number. Thus, under DQ, Switzerland, the number 841 is assigned to Regions, Peaks, etc., with the provision for subdividing still further by arranging the peaks, etc., alphabetically by their Cutter number, *e.g.* the number for Jungfrau (Cutter's number J8) would be DQ841 J8.

### *Language and Literature*

The schedules of Class P, Language and Literature, are subdivided in great detail and extend to many hundreds of printed pages. The main divisions of the class are

#### PHILOLOGY LINGUISTIC.

P	Comparative Philology Linguistic. Indo-European Comparative Philology Extinct Languages of doubtful relationship.
PA	Classical Philology and Literature
PB	Modern Languages General. Celtic
PC	Romanic.
PD-PF	Germanic
PD	General. Gothic Scandinavian.
PE	English.
PF	Dutch. Friesian German.
PG	Slavic Balto-Slavic Albanian.
PH	Finnish. Hungarian. Basque.

## BOOK CLASSIFICATION

PJ-PL Oriental.

PJ General Hamitic Semitic

PK Indo-Iranian. Indo-Aryan Armenian. Caucasian

PL Altaic Eastern Asia Oceanica Africa.

PM Hyperborean Indian Artificial Languages

LITERARY HISTORY. LITERATURE.

PN General

(PP) Classical, *see* PA.

PQ Romanic

PR English

PS American

PT German Dutch. Scandinavian

(PV) Slavic, *see* PG

(PX) Oriental, *see* PJ-PL

PZ Fiction and Juvenile Literature

The optional locations, PP, PV, PX while given in the synopsis of the P-PA schedule (1928) are not mentioned in the more recently published schedule PB-PH (1933) nor in the index to P-PM (1936)

As a general principle language and literature are collected, the language divisions preceding those allocated to the literature

### HUNGARIAN.

PH2001-2071 Philology

2073-2095 Language, General

2097-2800 Grammar, Phonology, Etymology, Lexicography, etc

### HUNGARIAN LITERATURE

PH3001-3009 Form Divisions

3012-3130 History

3132-3188 Collections of Poetry, Drama, etc , grouped according to literary form.

3194-3381 Individual Authors, A-Z

3401-3415 Local, by region, province, place

3421-3718 Translations

Under 3194-3381, Individual authors, A-Z, blocks of numbers are given to the foremost writers, others being grouped at specific numbers in the alphabetical sequence .

## LIBRARY OF CONGRESS CLASSIFICATION

PH3202	A-AR
3205-3209	Arany, János, 1817-1882
3213	Arany, László-Eöt
3220-3224	Eotvos, József, báró, 1813-1871.
3241	Eöt-Jók
3260-3278	Jókai, Mór, 1825-1904.
3291	Mol-Pet

All authors are thus collected in one alphabetical sequence, irrespective of the literary form of their works

The literatures of the major literary languages are separated and placed under PN-PT, PV and PX being unused in the Congress library itself. This separation is yet another example of the practical nature of this scheme and of the influence of the actual stock upon the schedules.

Taking English Language and Literature as an example, we have the works on English literature and the texts collected at PR, and separated from those on English language, placed at PE (which includes Anglo-Saxon and Middle English)

### ENGLISH LITERATURE

#### *Works about the Literature*

PR1-166	Literary History and Criticism	General
171	Anglo-Saxon (beginnings to 1066)	
251	Mediæval	Middle English (1066-1500)
401	Modern	
500	Poetry	
621	Drama	
751	Prose	
821	Prose Fiction	The Novel.
901	Oratory	
911	Letters	
921	Essays.	
931	Wit and Humour	Satire.
941	Miscellany	Cunosa Eccentric Literature
951	Folk Literature.	
972	Chap Books.	
Main division is by period		

## BOOK CLASSIFICATION

### *Texts*

- 1101-1395 Collections (arranged by form, then period, e.g. Drama collections occupy the divisions 1241-1273 Z9; a collection of 16th-century plays would be numbered PR1261)
- 1490-1799 Anglo-Saxon
- 1804-2165 Anglo-Norman Period Early English. Middle English
- 2199-3198 English Renaissance (1500-1640)
- 2199-2405 Prose and Poetry
- 2411-3198 Drama
- 3291-3784 17th and 18th Centuries (1640-1770)
- 3991-5990 19th Century (1770/1800-1890/1900)
- 6000-6049 20th Century
- 8309-9899 Provincial Colonial, etc

Except in the special instance of the Renaissance period, where it will be noted that the form Drama is separated, all literary forms are ignored and the arrangement within the period divisions is alphabetically by author, fiction is, of course, placed apart at PZ. The result is roughly an alphabetical array of authors and titles, that order being maintained by the allocation of notation symbols and the use of Cutter numbers to individualize author, work, and edition. The allocation of the notation varies according to the importance and actual stock of an author's works in the library. Authors such as Shakespeare (PR2851-3112—occupying nine pages of the schedules) and Dickens (PR4550-4598) are given whole blocks of numbers, other lesser-known authors have one or more numbers, or are grouped by their Author Mark at one specific number (seven authors ranging from Percy Fitzgerald to James Hain Friswell at PR4705). Tables in the form of appendices allow even a minor author to be subdivided.

The main divisions under an author are:

Collected Works.

Translations.

Selections, Anthologies, A-Z

Separate Works, by title, A-Z.

Biography and Criticism.

## LIBRARY OF CONGRESS CLASSIFICATION

The schedules of this class, reflecting as they do the experience gained through the administration and use of an enormous collection of literature, are worthy of serious study. It is interesting to note that PN, General Literature, includes such subjects as Authorship, PN101-249; Acting, PN2055-78; Scenano Wnting, PN1997; and Journalism, PN4700-5639.

### *Biography*

Biography, collective or individual, which does not illustrate any particular subject, is placed at CT, where it is regarded as an auxiliary of History. All other biography is placed with the subject it illustrates. Other bibliographical schemes allow this method of splitting up biography, but in this scheme it is compulsory. Thus in Class M, Music, the numbers ML385-406 are devoted to Collected Biography and ML410-429 to Individual Biography. Provision is made at (CT3910-9995) for the collection of Biography by subject—these are "extra" divisions, notified by use of brackets.

### *Index*

Each class is equipped with an alphabetical relative index, the fullness varying considerably from class to class. These indexes are individual, and, except for very occasional references to related topics in other classes, refer only to the schedules to which they are appended. The entries include geographical entries, personal names when used as subjects, references from different forms of names, names of battles and other topics usually omitted from indexes.

Packing	S571	Design ·	NC703
Butter :	SF269	Architectural Draw-	NA2700-90
Farm Produce :	S571	ing :	
Flowers :	SB443	Ceramic :	NK4250
Fruit :	SB360	Costume ·	NK4705
Milk :	SF261	Decorative ·	NK1160-1590
		Furniture :	NK2235
		Jewellery :	NK5545
		Sculpture .	NB1160



## BOOK CLASSIFICATION

### *Survey*

The Library of Congress is the most modern and perhaps the most efficiently administered national library in the world. The service is due in no small part to the scheme of classification in use. This classification scheme is perhaps the most effective of all bibliographical schemes, for it has been formulated for books, on the need expressed by an actual collection of books. There was but one object in view, the arrangement of the stock of the Library of Congress. As this consists of several individual collections, housed separately, the resulting scheme is a series of individual classifications, each of which has been worked out from the requirements of its own specialized collection with little or no regard to the method adopted in any other. This individuality of the main classes has little, if any, disadvantage in a library of the size of the Library of Congress.

Dr. Putnam has said that the Congress classification "has not sought to follow strictly the scientific order of subjects. It has sought rather convenient sequence of various groups, considering them as groups of books, not as groups of mere subjects. It has sought to avoid technical, foreign, or unusual terms in the designation of these groups." In discussing the essentials of a good book classification, he has stated that such a classification "must be systematic, and it must be elastic, that is, expansive. It must bring together books on the same subject and within that subject books by the same author, and it must give alphabetic, or under certain subjects chronological, sequence to the authors. It must also designate each volume by a symbol, which will permanently identify its location and yet permit of the insertion in the groups of later additions with their appropriate symbols, each also self-explanatory and precisely locative."

From its very nature this scheme is extremely unlikely to be adopted in its present form by many public libraries of less than national importance. The main value to the average library is that every class, published separately, complete with tables, definitions, and index, and at a cheap cost, becomes an excellent classification tool, especially for the arrangement of special collections. The permanence of the classification is assured by the financial assistance given by the U S Government. Its use in conjunction with the Library of Congress co-operative cataloguing distribution scheme makes for uniformity in application.

## LIBRARY OF CONGRESS CLASSIFICATION

It is natural perhaps to compare this scheme with the other great practical scheme of book classification, the Decimal Classification. Neither claims a theoretical order, both being compiled from the needs of an actual collection of books. While Dewey's object was to formulate a scheme which would be widely adopted, that of the Library of Congress was to produce a classification for the arrangement of that library alone, with little, if any, regard to its usefulness to other libraries. The Congress schedules were, and still are, prepared by specialists with a constant regard for existing literature. The enormous stock of this library assures that the schedules are comprehensive with places for all books both past and present. On the other hand, the schedules of the Decimal Classification have, in later editions, been expanded by specialists most probably with little regard to the needs of books. The result is that whereas there are very few, if any, books that cannot be satisfactorily placed in the Library of Congress scheme, there are many for which the Decimal Classification provides no convenient place.

Summing up the Library of Congress Classification is a good *book* classification because

(1) It has been worked out by specialists with constant regard to the needs of books

(2) The schedules are kept up to date

(3) Its classes are published separately, complete in themselves, making it invaluable for special libraries, and allowing revision to be made more or less easily and cheaply

(4) It is doing its job well—extremely well

The Library of Congress Classification seems to have in its schedules the essentials of an ideal bibliographical classification, suitable for all public libraries. In its present form, however, it is too detailed and complex for widespread adoption. If it were possible to modify and amend the existing schedules, a practical book classification for adoption in almost every type of library might result. The chief modification necessary would be the production of several classifications of progressive fullness based on the existing schedules, on a principle similar to that underlying Cutter's *Expansive Classification*. The finished result would consist of separate complete classifications, the first for use in

## BOOK CLASSIFICATION

libraries of very small stock, the last (the present complete classification) for arrangement of libraries with stocks of some millions of volumes. The adoption of an economical notation with some mnemonic value would further enhance the worth of the classification for the average public library.<sup>1</sup>

<sup>1</sup> See *Appendix II*.

## THE SUBJECT CLASSIFICATION

IN 1894 James Duff Brown (1862-1914), perhaps the greatest figure in British librarianship, published, in collaboration with John Henry Quinn, a classification for the arrangement of libraries called the *Quinn-Brown system*. This soon proved inadequate for the rapidly growing libraries, and in 1897 Brown formulated a slightly different and greatly expanded version named the *Adjustable Classification*, equipped with a notation and an index. This latter classification proved of little value, as the provision made for new subjects was merely the leaving blank of certain numbers in the notation. The Dewey classification was rapidly gaining in favour in this country, and in 1906 Brown, spurred on by the frequent complaints that the Dewey scheme bestowed too much attention on things American, published the *Subject Classification* as an improvement on the Decimal scheme at least from the point of view of the British librarian. A second edition with no radical changes was published in 1914, and this was reissued in 1926. A third edition, revised and enlarged by James D. Stewart was published in 1937. Although containing many additions and some alterations, the new Subject Classification still retains all the essential features as laid down by Brown. It is being used in its original or modified form in forty-one British libraries, but appears to be giving way slowly to the Decimal and other book classifications.<sup>1</sup>

### *Main Outline*

The main classes are arranged in the following order

A	Generalia
B-C-D	Physical Science
E-F	Biological Science
G-H	Ethnological and Medical Science
I	Economic Biology and Domestic Arts.
J-K	Philosophy and Religion.
L	Social and Political Science.
M	Language and Literature.
N	Literary Forms.
O-W	History and Geography.
X	Biography.

<sup>1</sup> *Library World*, Vol. 40, 1937-38, pp. 155-7.

## BOOK CLASSIFICATION

These classes can be roughly arranged into four great groups ·

Matter and Force

Life

Mind

Record

It is important to note, however, that these groups have no practical significance and are not an integral part of the actual book classification

By a doubtful analogy it has been claimed that the main classes follow an evolutionary order For a detailed explanation and justification of this order the student is referred to the files of the *Library Association Record* and *Library Assistant*, and to the pages of other text books Brown's inclusion of so many recognised branches of knowledge in the "extra" class, Generalia, seriously questions all these personal theories Above all it must be stressed that *Brown claimed no such order* He has stated that book classification "has become a mere battlefield for theorists, from which nothing of a very definite or permanent kind has emerged" His purpose in formulating the Subject Classification was essentially a practical one, and he stated that his object was to provide a simple, fairly logical, and practical method for British libraries In its practical application his fundamental idea was "that of assembling everything relating to a topic at one constant or unmistakable place" To this end he provided "a certain order of classes, in logical order, with divisions and subdivisions, means of intercalating new subjects; and a method of subdividing subjects into forms and other categories by means of a separate table of numbers"

### *Subdivision of Classes*

Brown says, "In this scheme of Subject Classification every class is arranged in a systematic order of scientific progression, as far as it seemed possible to maintain it, while applications directly derived from a science or other theoretical base, have been placed with that science or base" Brown subordinated every other consideration to his attempt to obtain this consistent, logical sequence, but the subdivision of classes runs contrary to the general experience of both the scholar and the man in the street For example, Brown places Music as a development of Sound, while the normal practice is to treat Music

## THE SUBJECT CLASSIFICATION

as a branch of Fine Arts Brown's arrangement brings the trades that are based on a pure science into relation with that science This may be logical in principle, but tends to separate topics which could be more usefully brought together, thus in Brown there is no Arts and Trades class, each trade being separated by masses of material on the pure sciences Brown does not consistently apply this principle, so that many trades do not follow the science to which they may be supposed to bear a relation

C300	Acoustics (Sound)	C000	Electricity and Magnetism
400	Music	001	Electricity (alone)
440	Musical Forms	002	Electro-dynamics
443	Instrumental Forms	030	Magnetism
465	Dance Forms	050	Electrical Engineering.
500	Vocal Forms	051	Dynamos
510	Choral Practice	070	Wiring and Switches (Cables)

In his attempt to collect all material on a specific subject at one place, Brown made the *material* the subject A word in explanation: any branch of human activity involves two factors—"material" and "purpose" It is the combination of the two that makes the "subject" The classifier should direct his attention to the second of these An example will make this clearer "Railways" is not a subject, but is the material for several subjects, *e g* when the purpose or point of view from which it is considered is that of the economist, the resultant subject is the *Economics of Railways* When the purpose is that of a transport official, the subject is *Railway Transport*, when that of a constructor, it is *Railway Engineering* Brown collects these as sections of the subject *Railways*, whereas they are distinct individual subjects, and would have been more conveniently placed with their appropriate related classes, Economics, Transport, and Engineering

A further word on the definition of a subject might assist the reader in grasping the significance of the previous paragraph, which is so essential to the understanding of Brown's principles Anthropology is the study of man as an animal, Sociology is the study of man in communities In each case *man* is the material, yet Anthropology and Sociology are distinct subjects, so different is the aspect from which

## BOOK CLASSIFICATION

man is viewed Or, as another classifier puts it " . we do not think of "iron" as a subject, but only of the subjects "iron ore deposits," "the element iron," "the mining of iron ore," "the metallurgy of iron," "metal working," "iron manufactures," etc The selection of suitable subjects is dependent on the normal activities of mankind in which "processes" are as frequent factors of differentiation as "things"<sup>1</sup>

The schedules of the 1937 edition have been extensively revised and enlarged Places have been allocated to a large number of subjects which came into existence or developed since the first edition Thus, the Editor claims, has been carried out without disturbing the placing and numbering of existing subjects. Wherever possible new subjects have been given a new number, but in a few cases the original significance of the notation has been changed Examples of this revision

1906 edition	1937 edition
B637 Wireless Telegraphy	B637 Radio Communication, Wireless Telegraphy, etc
638 Cohersers	638 Broadcasting.
639 Interrupters	639 Television.
L412 Arbitration	L412 Arbitration
413 Conciliation	413 League of Nations
414 Compromise	414 Disarmament
415 Neutrality.	415 Neutrality

### *Notation*

The notation is mixed, composed of the capital letters A-X (Y and Z are not used), and arabic numerals used arithmetically 000-999

L	Social and Political Science
200	Political Science.
201	Government, General.
202	The State (Constitutions).
203	City State.
204	Feudal System
205	Fiefs.
	See also L151, L152.
206	Monarchy.

<sup>1</sup> *Classification Decimale Universelle. English edition, 1943, Vol. 1, pt 1, p 5.*

## THE SUBJECT CLASSIFICATION

Note the use of the *see also* reference.

Despite this large base of twenty-four letters, Brown has not marked all the main classes distinctively. Philosophy and Religion are grouped at J-K, but Philosophy is J300, not J as might have been expected. Similarly the British Isles is spread over the units of notation U and V. Expansion is provided for by gaps in the main sequence and, if necessary, by the use of decimals. It must be noted here that the use of decimals in the midst of arithmetical numbers would tend to cause confusion in the sequence and finding value of the notation. While the main notation is comparatively simple, brief, and flexible, the use of the Categorical Tables and geographical divisions, as Brown instructs, greatly minimizes these qualities.

The "History of trade unionism in Glamorganshire" is marked L159U277 10, the "Economics of dairy farming in Jersey," I060U991.760. An abbreviated form of notation may be used for classifying small collections and qualifying other subject numbers, C3 Acoustics, C0 Electricity, Freemasonry in Russia L185S0 instead of L185S000.

### *Generalia Class*

The construction of this class is peculiar to the Subject scheme, and is entirely different in its conception from that of other schemes, where it accommodates works which are of too general a character to be placed in any one other class.

- A Generalia
- 000 Encyclopædias
- 100 Education
- 300 Logic (Dialectics).
- 400 Mathematics
- 600 Graphic and Plastic Arts (The Pictorial Record)
- 900 General Science.
- 950 Scientific Travel and Surveys.

Such subjects as Logic, Education, Mathematics, and Plastic Arts are included on the grounds that they "qualify or pervade every branch of science, industry, or human study," and that "they are universal and pervasive, and cannot be logically assigned to any main single class as peculiar or germane to it." The special subjects placed in this additional class question the claimed logical order, for as recognized branches of



## BOOK CLASSIFICATION

knowledge they should find a place in the main hierarchy. In any case they are not conveniently placed here. Mathematics is separated from Science, Logic from Philosophy or Science, Education from either Psychology or Social Sciences, and Sculpture and Plastic Arts from the other Arts. Brown's logical argument for the inclusion of these subjects was quite sound in theory and as cogent as that of Dewey's in including Library Economy and Bibliography in Generalia. The real question is where to stop; other subjects, such as Psychology, could be placed here for similar reasons.

Brown's conception is in direct opposition to the practical ideal of placing subjects in their most useful order. Despite the logical truth of "pervasion" he should have recognized that the public, both layman and specialist, usually associate these subjects with others in the main schedules.

### *Categorical Tables*

In the main tables of the Subject Classification no form or common subdivisions are set out. In place of these are supplied the Categorical Tables, representing standpoints, forms, and methods which apply to subjects or subdivisions in the main tables. Each term is given a number (0 to 975), preceded by a point (.), which is merely a separating device and must not be confused in its use with the point used decimally. This number is added to the main notation, e.g. B669.1 Bibliography of Yachting. The Tables are so arranged that, on the average, the most popular terms come first and have the shortest numbers. There are, however, exceptions, e.g. Law 811, Essays 954, which often make the full number cumbersome.

In the first edition, the Categorical Tables list 973 terms<sup>1</sup> including the following four generalia divisions:

- 0 Generalia
- 00 Catalogues, Lists
- 01 Monarchs, Rulers, etc
- 02 Subdivision for rearrangement

In the 1939 edition, the list has been slightly increased by the addition of new forms, making a total, with the four generalia divisions, of 980 entries (262, 694, 695, 698 are not used).

<sup>1</sup> The numbers 36, 38, 262, 694, 695, 698 were not used. In the 1914 edition 36 was used, in the 1939 edition 36 and 38.

## THE SUBJECT CLASSIFICATION

- 976 Broadcasting.
- 977 Models, Miniatures.
- 978 Cleaning
- 979 Repairing
- 980 Collecting

The Tables are equipped with an alphabetical index for easy reference. They are the outcome of Brown's endeavour to construct a one-place scheme, to avoid the use of a relative index, to shorten the length of the main notation, and above all to prevent inflation of the main tables by constant repetition of common standpoints

As Brown acknowledged, many of the entnes refer to one section of the schedules only, others are names of concrete topics here used as aspects, standpoints, etc.<sup>1</sup> The entnes given below illustrate this.

87 Logic	197 Shipbuilding
89 Classification	229 Electrical Engineering.
91 Mathematics	324 Crystallography
92 Arithmetic	332 Electro-Metallurgy.
93 Decimals	371 Biology
94 Analysis	429 Embryology
95 Algebra	464 Bacteria
96 Fractions	475 Zoology
97 Problems	584 Agnculture.
98 Weights	701 Canon Law
99 Measures	728 Bible Classes

On the other hand, these and all other entnes can be used individually as aspects at some head in the main schedules

At an estimate, over 90 per cent of the entnes in these tables are included in the main schedules as specific subjects. These Tables have considerable mnemonic power, but it is hardly correct to say that they are mnemonic in their entirety, as it cannot be said that so many numbers "aid the memory". The fundamental principle of the Categorical Tables is a sound one, and the idea has been used in the "Relation form sign" of the Brussels Classification.<sup>1</sup> Also in actual practice the duplication of entnes in the Tables and main schedules could prove extremely

<sup>1</sup> See page 124

## BOOK CLASSIFICATION

useful as it allows alternative methods of treatment, e.g. Archæology of England might be placed at O100 Archæology or under England at U301 32, .32 being categorical number for Archæology Cabbage cultivation might be placed at I017, Farming of Green Crops; at I227, Vegetable Market Gardens, or at E550 431, E550 being number under Botany for Cabbage and 431 categorical number for cultivation. This alternative principle is used in a developed form in the scheme of Bliss<sup>1</sup>

In practice it is found that few of these numbers are much used (10, .33 and a dozen or so others), one modern library of 120,000 volumes uses barely twenty in the classification of its stock. It is disappointing to note that the number of the entries is increased in the new edition, for it is generally accepted that a drastic reduction would greatly increase the effectiveness of this device.

### *History and Geography*

With the use of the Categorical Tables, the arrangement of the Class O-W, History and Geography, is most logical and useful. In this class one number is given to the town, country, etc., and its history and geography are standpoints from which the place is regarded. Brown has separate heads for all the principal rivers, mountains, lakes, and towns of the world, and all British cities, county boroughs, and boroughs. Within the county, the first places are given to the chief town or towns, followed by other towns and important villages in alphabetical order.

O300	Africa	U690	Devon
O400	Egypt	691	Dartmoor
P000	Oceania	692	Exeter
P100	Polynesia	693	Barnstaple
P600	India (Hindustan)	694	Bideford
Q000	Europe	695	Dartmouth.
Q500	Italy	696	Great Torrington
R000	France.	697	Honiton
S600	Germany	698	Okehampton
U000	Ireland	699	Plymouth (Three Towns)
U200	Wales	700	Devonport

<sup>1</sup> See p. 143.

## THE SUBJECT CLASSIFICATION

U300	England and Wales (together).	701	Stonehouse
		702	Torquay
U301	England	703	Totnes.
V500	United Kingdom (British Islands)		

The Categorical Tables entry, 02 may be used to accommodate places not given a specific number under the county, e.g. U247 02 Barmouth; U435 02 Filey

The chief alterations and re-arrangements in the 1937 edition of the scheme are found in this class. These were made necessary by the changed face of Europe after the Great War, 1914-1918. Places had to be provided for new countries and territorial groupings while still retaining places for the literatures of the older regimes. An example of the re-allocation of the notation

1st edition	3rd edition
S460 Slavonia	S460 Czechoslovakia.
465 Transylvania	465 Bohemia
466 Princes, 1526-1630	466 Dukes of Bohemia, 890-1197
467 Clausenberg.	467 Ottocar I, 1198-1230.
468 Bosnia	468 Wenceslas III, 1230-53.

An example of the use of previously unused symbols

Russia
S044 Revolution, 1917
045 Union of Soviet Socialist Republics.
046 Lenin, 1917-1924.
047 Stalin, 1924-

Within the class, history and geography are treated as aspects and the corresponding numbers are taken from the Categorical Tables. The Geography of Torquay would be marked U702.33; the History of Torquay U702 10; thus bringing into proximity on the shelves the sequences of books on the geography and history of a place. Brown collects under the place all forms of history, including civil, church, military, and social, e.g. under History in the Index to the Categorical Tables appear the following entries

## BOOK CLASSIFICATION

History (for general use)	.10
Ancient	.11
Church	.16
Civil	15
Early	11
Mediæval	13
Military	18
Modern	14
Naval	19
Social	17

The opening divisions of each block of numbers devoted to a country are given to what Brown calls "Regnal numbers" Here the dynasties and monarchs have been given a number

U301	England.
302	Roman Occupation
	Etc.
356	House of York, 1461-85.
357	Edward IV, 1461-83.
358	Edward V, 1483
359	Richard III, 1483-5

Brown advises that these numbers be made the place of assembly for all royal biographies, general State papers, histories, and special monographs on any event of an historical nature which occurred during the reign. Minute subdivision can be obtained by the use of the Chronological Tables<sup>1</sup>.

V561jv for any book on an event in 1705 in the reign of Queen Anne.

Related books would tend to be separated here, as at U365, History in the reign of Queen Elizabeth, the classifier is referred to V550, a head under United Kingdom, for the succeeding monarchs

Geographical division of subjects throughout the scheme can be obtained by adding the corresponding number from the classes O-W to the number it is required to subdivide:

The Geology of Cuba would be marked D398W641; D398 being Local Geology in the Geology Class D300.

<sup>1</sup> See p 118

## THE SUBJECT CLASSIFICATION

### *Language and Literature*

Brown collects the Language and Literary History of a country at Class M, where the division is primarily by language

M	Language	Literature and Bibliography
500	Teutonic Languages	
501	Literature	
502	Low German Language.	
510	Anglo-Saxon Language (Old English to 1150).	
511	Literature	
520	English Language, General.	
521	Literature, General	
522	Middle English (1150-1500).	
523	Modern English Language (from 1500).	
524	Literature	
525	Local English Dialects	

In some cases, those of comparatively unliterary languages, one number is given in which both the language and literary history can be assembled. They can, however, be divided by means of the Categorical Tables, thus.

M227 867 Numidian Language.

M227 915 Literary History.

M700-M995 are devoted to Palæography, Bibliography and Library Economy. The criticism of a literary form and the literary history of a country are removed from the texts that compose that form of literature, a separation which is as bad in principle as Dewey's treatment of classes 400 and 800.

The texts are placed in Class N, Literary Forms and Texts, where Brown provides four broad divisions:

N000 Fiction.

100 Poetry.

200 Drama.

300 Essays and Miscellanea.

Within these divisions are arranged, without linguistic or chronological distinction

## BOOK CLASSIFICATION

(1) Collections and works on the theory and practice of the form

(2) Works of individual writers in alphabetical sequence The main divisions under Poetry .

N100	Poetry
101	Anthologies, General.
102	National
110-124	Forms of Poetry
130	Prosody
150	Individual Poets (alphabetical).

Under the four form groups are arranged all literary works according to their form in an alphabetical array of authors While being useful for mere finding purposes, this arrangement is inconvenient for the serious reader or student, who is usually interested in the literature of a special country or period. If necessary, however, the geographical numbers can be used to divide these groups

N202U2 denotes Welsh Drama , N202 being special number for National Drama and U2 the abbreviated geographical number for Wales

### *Biography*

Class X, Biography, is divided roughly as follows

X	Biography and Heraldry
000	Biography (including correspondence and criticism)
001-074	Collective and Class
075	Genealogy and Family History
080	Heraldry
115	Orders of Knighthood
119	Chivalry. Heroes
200	Epitaphs.
203	Registers (Birth, Death, Marriage).
210	Portraits.
215	Autographs.
216	Seals (Sphragistica)
220	Directones (General).
300	Individual Biography

## THE SUBJECT CLASSIFICATION

Brown collects here all material of likely biographical interest Under the head X300 are arranged all biographies in alphabetical order of the biographee, again, a very useful arrangement for finding purposes (Brown has formulated an alphabetical biographical table which can also be used at other heads, e g X210 and X215)<sup>1</sup> An alternative arrangement is allowed With the use of the Categorical Tables, Biography may be split up according to subject interest, leaving Class X to accommodate general collective or miscellaneous biography Thus a biography of a sculptor would be placed at A790 41, a biography of an economist at L100 41, and so on Brown himself favoured the collection of Biography, saying "unless for special purposes, biography should invariably be kept by itself"

### *Index*

Largely on account of his one-place principle Brown appends an index of the specific type, giving entries for each topic mentioned in the schedules, with many synonyms The aspects and relations of a subject are collected, but are entered under the alphabetical form of their names or relegated to the Categorical Tables Brown defends this type of index by saying that Dewey's index is "the least satisfactory feature" of the Decimal Classification and that "a relative index or list of possible subject headings is the apparatus of dictionary cataloguing, and not classification"<sup>2</sup> An example

Linoleum	B335
Linotype	M833
Linseed	E640
Lintels	B369
Linz	S334
Lions	F956
Lipan Island	Q976
Lippe-Detmold	S825
Lippe, Schaumburg-	S830

<sup>1</sup> See p 118

<sup>2</sup> Brown, "Cataloguing and classification," pp. 59-61 It is surprising to note that in his Index Brown occasionally used the relative principle, e g under Engineering (1906 ed) 13 viewpoints are listed as against 12 given in the 13th ed of Dewey.



## BOOK CLASSIFICATION

Liquefaction of Gases	D726
Liqueurs	1838
Liquid Fuel	D570
Liquidation	L845

In order to fulfil the constant place principle in practice, Brown insists that "the number of a subject in the Index is the number to be given to a book whose subject has been definitely ascertained" He adds "whatever categorical or other number may afterwards be applied the one place number is the Index number"

### *Mnemonics*

Mnemonic value is applied by .

- (1) Geographical Divisions
- (2) Categorical Tables (to a certain extent)

### *Other Features*

In the Introduction are set out many tables relating chiefly to the practical application of the scheme The most important of these are

(1) An elaborate system of biographical numbers devised by Brown These numbers are for use in Individual Biography, Fiction, Poetry, and other classes kept in alphabetical order of author's names If necessary, they may be used as book numbers to distinguish individual books, and to subdivide subjects The numbers, which have a decimal significance, commence at 300 and therefore do not conflict in the Biography class with the last number for collected biography X220

Aa	300	Ac	302	Ba	326
Ab	301	Aca	3020	Da	378
Aba	3010	Acc	3021	Ed	407
Abb	3011	Ach	3022	Za	939
Abc	3012	Acl	3023	Zan	9393
Abd	3013	Ad	303	Zw	945

Thus a biography of Abbot would have the notation X3011.

(2) An "Extended Date Table" providing for the chronological arrangement of books from A D 1450 to 2125

## THE SUBJECT CLASSIFICATION

A D.		A D		A.D.		A.D.	
1450	aa	1700	jq	1900	ri	1918	sa
1451	ab	1701	jr	1902	rk	1919	sb
1452	ac	1702	js	1903	rl	1920	sc

Thus Balfour, *Manual of botany*, 1905, would be marked E100.3rn.

(3) Other tables include one for arranging an author's works and one for arranging works on a county or other area

### *Survey*

The chief weaknesses of the Subject Classification revolve around Brown's attempt to produce a foolproof, logical *one-place* classification. It is doubtful whether the perfect one-place scheme will ever materialize. If it does, it will have no practical advantage over existing schemes. The principles underlying the "one subject, one place" idea are ideal in theory but clash in practice with the law of convenience, the convenience of neither the librarian nor the borrower demands such an arrangement. "Coin collecting" bears little relation to "Economics," and thus books on these subjects are not conveniently placed when brought together on the shelves. It is the task of the catalogue to collect and link all aspects of a subject. Bliss says that the principles underlying the Subject Classification are good if not carried to extremes, but they are carried to extremes by Brown. In his attempt to produce this ideal scheme, Brown made the "material" the subject and assumed that all the Arts are Applied Sciences, placing these wherever possible after the basic sciences. He relegated every conceivable aspect to the Categorical Tables and appended a Specific Index. He provided no such useful classes as Commerce and Business and Useful Arts, separated related subjects that are used together, such as those comprising Building Construction, and correlated those which are not.

The practical defects of this classification are due to the fact that it is individual, strongly reflecting the personal opinions of one man, and that no organization was provided to keep it abreast of modern knowledge. It must be emphasised that the Subject Classification was the work of a great practical librarian who realized that all book classification must of necessity entail a compromise. He worked according to a theory which he admitted "may seem heretical" with "many departures

## BOOK CLASSIFICATION

from established convention" but for which "reasons, weak or strong, can be advanced" The scheme has many good points, and is in many ways an improvement on the Decimal Classification, especially for British libraries The arrangement of main classes is an improvement on Dewey, the headings adopted are more suitable for an English library, and the classification as a whole is more simple The mixed notation is effective, his Religion, Music, and "Local" Classes rank perhaps as the best in modern bibliographical classification The Subject Classification is still an active and useful book classification and with certain modification to bring it up to date, should prove effective for small and medium-sized libraries

The new edition does not depart from any of Brown's fundamental principles It has already been noted that new subjects are introduced and the History class has been brought up to date, if only temporarily It is disappointing that the revision has been so conservative, in particular the opportunity was ignored of improving the effectiveness of the Categorical Tables by drastically reducing the number of entries The writer has been assured by a librarian who uses the Subject Classification to arrange his stock of approximately 120,000 volumes that the new edition of the scheme still remains totally inadequate for the purpose He has been compelled to alter, rearrange and expand certain sections, and has found that over 950 of the Categorical numbers are superfluous in practice

The publication of this new edition may revive interest in this scheme as a practical and efficient book classification, but it is doubtful if its gradual replacement by other schemes will be halted

## BRUSSELS EXPANSION OF THE DECIMAL CLASSIFICATION

### THE CLASSIFICATION DECIMALE UNIVERSELLE

THE Institut International de Bruxelles (now named the Fédération Internationale de Documentation) was the outcome of an international conference held in Brussels in 1895, to consider the best means of organizing bibliographical work. The main objects of the Institute are:

(1) The compilation of "Un Répertoire Bibliographique Universel," a complete card catalogue, in both author and classified form, of existing literature

(2) The compilation of a vertical file of newspaper cuttings, pamphlets, and other fugitive materials, also arranged in classified order, to form a mobile international encyclopædia of colossal proportions

(3) The collection of bibliographies of all subjects and in all languages

(4) The perfecting and standardization of every method in connexion with the production of books

#### *Classification Scheme*

The scheme needed for the first two projects was a very detailed and expansive one, with which minute analysis could be carried out. After examining every existing scheme, the Institut decided to use the Decimal Classification, and obtained permission to alter and modify it according to their requirements.

The reasons given for its adoption were:

(1) The Decimal Classification was one of topics and independent of language

(2) Its notation was the only international language, since it consisted solely of arabic numerals, known throughout the civilized world

(3) Its decimal principle allowed indefinite intercalation

While preserving the general order and character of the original, the specialists of the Institut "completed, amended, rehandled" the scheme according to their specialized needs. The resulting *Classification Décimale*,<sup>1</sup>

<sup>1</sup> 2nd edition, 1927-33, English edition in progress, British Standards Institution. In this edition, the Dewey classes, 913-919 have been restored, and no instructions are given to use the decimal point for emphasis.

## BOOK CLASSIFICATION

with its redivision, additional schedules, and annotations, is virtually a new scheme, but it remains a valuable interpretation of the more important features of the Dewey scheme. It is being used in at least six special libraries in this country.<sup>1</sup>

### *Amendments*

The chief alteration and amendments were .

(1) *The abandonment of the "three-figure minimum"* in the notation. Thus 5 is Science, 53 Physics, 535 Optics. The decimal point is used only to break up numbers, so that they are easier to read or for emphasis, e.g. Physiological Optics 535.7, is written 53 57 to emphasize the physical factor ; 535.7 to emphasize the optical factor

(2) *The reshuffling of Class 900* Dewey's divisions, 930-999, disappear, and the figures after the initial "9" are used as a separate geographical table. All history is arranged under 9 and all geography under 91, the geographical numbers, in each case, being given in brackets, the two forming a parallel sequence

9	History		
9(3)	Ancient history		
9(4)-(9)	Modern history		
91(3)	Ancient geography and travel		
91(4)-(9)	Modern geography and travel		
913	Archaeology		
92	Biography		
929	Genealogy and Heraldry		
9(42)	History of England	91(42)	Description of England
9(43)	History of Germany	91(43)	Description of Germany.
9(436)	History of Austria	91(436)	Description of Austria.

The Biography class has four main groups :

92 ( )	Collective by country
92 :	Collective by categories
92 " "	Collective by periods
92 A-Z	Individual.

(3) *The minute expansion of many heads* and frequent full definitions as to the use and meaning of terms.

<sup>1</sup> *Library World*, Vol 40, 1937-38, p 155-7.

## BRUSSELS EXPANSION OF THE DECIMAL CLASSIFICATION

An example is the development of 577 Properties of Living Matter In the Decimal Classification, 577 1 has no subdivisions, in the new scheme it has the following

- 577 1    Chemis    difference between organic and inorganic.
- 577 11    Chemical composition of living beings in general
- 577.12    Interorganic chemical changes amongst beings in general.
- 577 13    Reserve substances in biology
- 577 14
- 577 15    Enzymology (special analytical tables and detailed sub-division)
- 577 16    Vitamins    Vitaminology
- 577 17    Hormones, etc

The following is a brief review of expansions in the main classes

Class 1    Despite its faults, left practically intact    Full schedules for 133    Dewey's 180 and 190 are omitted and accommodated at either 1 or 14

Class 2    Where terminology is vague, lucid notes are added, e g at 211 and 214    Gaps created at 274-9 are used for extended "Dogmatic Christianity"    Dewey's 229, 240, and 290-9 are greatly expanded, 291 is the general place for religious discussion

Class 3    Dewey's 330, 340, 350, and 380 are extended and elucidated 325 contains all colonial questions, 329 1 is amended to obviate American bias and is subdivided

Class 4 and 8    All literatures are divided as 84, French Literature, by form (poetry 841, etc) and then author, A-Z; form divisions proper are also used    848 is Miscellaneous Literature

42-49 is Special Philology, with geographical divisions and special places for dialects

Class 5 and 6    General extension, especially at 54 (lists of minerals, metals, etc), 61 (over 100 pages), 63, 66-68

Class 7    Industrial Arts at 745-9    Dewey's 770 is elaborated without modernizing    78, Music is devoted to theory with a special appendix at M78 for scores, this latter schedule is arranged

By composers, A-Z

By instruments and voices (e g. Violin music, M787 1)

By genres (e g Oratorios, M783 3)

## BOOK CLASSIFICATION

### (4) Auxiliary Signs and Tables (Common form marks).

#### (a) Combination of Main Classes

(1) Accretion or plus sign +, equivalent to *and*, serves to unite two or more numbers when it is required to indicate that the work contains two or more subjects, e g 52+53 suggests that both Astronomy and Physics are dealt with. When the numbers of the constituent subjects run consecutively, the first and last only are given with a stroke, /, between them, e g 592/599 represents 592 + 593 + + 599

(2) Relation sign , showing relation to other subjects. In many ways the most important of the new signs. Founded on the same idea of relation as that shown in Brown's Categorical Tables, a book on *Wages in the textile industries* (677 Textile Industries and 331 2 Wages) has the notation 677 331 2 or 331 2 677

The use of two combination signs should be clearly distinguished, e g. a work on Mathematics and Physics (51 + 53) is very different from one dealing with Mathematics in relation to Physics, Mathematical Physics (53 51)

#### (b) Analytical Subdivisions

In many of the main classes special series of common subdivisions are included. These may be added to any number in the class specified, using the signs, .0, "point 0," and —, "hyphen". The "hyphen" subdivisions are more general in character and have a wider use than those with "point 0". Examples

In Class 53, Physics, 53 05 represents Observation and recording of physical phenomena, thus 537 05 represents Observation, etc. of electrical phenomena

In Class 4, Philology, 45-3 represents Italian dictionaries, 45-4 Italian synonyms, 45-5 Italian Grammars. Thus 46-3 would represent Spanish dictionaries, 46-4 Spanish synonyms, 46-5 Spanish grammars. This sign must not be confused with the form sign (01)-(09)

#### (c) Auxiliary Tables

These increase the comprehensiveness of the classification and are used as common form marks to specify subjects more minutely

(1) Form sign (01)-(09), for form and general works. These retain the original Dewey significance, but have been redefined and greatly expanded. Examples of these tables will be found in Table 2 of the appendices to the Decimal Classification

## BRUSSELS EXPANSION OF THE DECIMAL CLASSIFICATION

(2) Place sign (2)-(9), (3)-(9) are the regular geographical numbers of Dewey used without the initial "9," and within brackets; (2)-(289) is a special table indicating physical places and features

- (21) Continents
- (22) Islands
- (23) Mountains
- (234) In Europe
- (234 3) The Alps

(3) Time sign " ", shown by writing the date or dates between double inverted commas. Examples will make clear the use of this sign. Minus (—) expresses B.C., e.g., 200 B.C. is represented by "—2", A.D. 200 by "02", A.D. 1300 by "13", 1933 by "1933", 20th century by "19," and so on. The months, days of the month are represented in the same way, 01 being January, 02 February, etc., the first day of the month by 01, the second by 02, etc. Thus April 16th, 1907, would be represented by "1907.04 16"

Other devices are used to indicate various periods of time, and, if necessary, the hours and seconds of a particular day can be marked, e.g.

" + " represents Christian Era

" 04/14 " represents Middle Ages

" 15/19 " represents Modern Times

" 1898 12 07 15 46 03 " represents 7th December, 1898, at 46 minutes and 3 seconds after 3 p.m. (15 hours)

This sign is used in two ways to indicate the date

- (1) Of the subject with which a work deals
- (2) Of publication of the work

The distinction between the two uses is made clear by the order in which the sign is written, e.g.

(1) 78" 18"(03), Dictionary of 19th century music

(2) 78(03)" 18," Dictionary of music published in the 19th century

(4) Universality sign .  $\infty$  . . . ; used with the time and place signs to mean "without limitation." With the place sign it means "including all places," e.g. 9( $\infty$ ) History of all countries, with the time sign it means "covering all periods," e.g. 9( $\infty$ ) " $\infty$ " History of all countries at all times.



## BOOK CLASSIFICATION

(5) Language sign=2-9; Dewey's Philology numbers, where initial "4" is replaced by the sign=. These subdivisions of language are subordinate to all other divisions of form, e.g. Medicine in English written in German, 61(42)=3

(6) General points of view sign . 00, special to the Brussels scheme, but now introduced in the Dewey tables

- 001 Speculative.
- 002 Realization
- 003 Economic.
- 004 Service and Use
- 005 Equipment and Apparatus
- 006 Buildings and Establishments
- 007 Special Personnel

With the exception of 005, each of these divisions is subdivided in some detail, e.g. Storage for collections of photographs is represented by 77.9.0044.

(7) A-Z. Final alphabetical arrangement by name of person, place, or thing is indicated, according to circumstances, by initial or whole name To be used only where indicated in the tables

Variations in the sequence and order of these signs are possible, but the English edition (1943) recommends the following

a + or / combination comes immediately before the first main number Then follows the main number, next all numbers consisting of the main number linked by to a second main number Combinations involving auxiliary numbers come next in the order, =, ( ), " ", then the letter combinations A-Z, —, 00, 0 and finally the ordinary subdivisions 1/9

An example of the use and order of these symbols

<i>Symbol.</i>	<i>U D C Number</i>	<i>Interpretation</i>
+	622.33 + 662 74	Coal-mining and coke works
/	622 33/.34	Coal and ore mining
U D C number	622 33	Coal-mining.
	622 33 . 338 97	Economic crises in coal-mining
=	622.33 = 2	Works on coal-mining in English.
(0)	622 33(021)	Handbooks on coal-mining
(1 5)	622.33(42)	Coal-mining in England.

## BRUSSELS EXPANSION OF THE DECIMAL CLASSIFICATION

" "	622 33"18"	Coal-mining in the nineteenth century
A/Z	622 33 Penistone	Penistone collieries
—	622 33-78	Safety devices in coal-mines
00	622 33 004 8	Extraction of by-products of coal-mines.
.0	622.33 04	Gobbing in coal-mines.
1/9	622 335	Anthracite mining

### *Survey*

The scheme is of special interest, as the symbols and schedules may be applied to those sections of the Decimal Classification found to be insufficiently detailed for masses of specialized material in large and special libraries. The expanded schedules are of value even to medium-sized libraries, especially in Class 700 which remained undeveloped in Dewey. The expanded form divisions and an abridgement of Class 582, Systematic botany, are now given in the Appendix to the Dewey Decimal Classification.

Professor Pollard, of the Imperial College of Science and Technology, has said, "There can be no doubt that this developed decimal system is the most perfect, and at the same time, the simplest and cheapest method of indexing bibliographical material that has ever been devised." It must be remembered, however, that the Brussels scheme was formulated for the arrangement of *entries* in an immense bibliographical catalogue, and that the full notation is too complex and unfitted for the arrangement of books on the shelves of libraries—a task for which it was never intended. The scheme is being used in this country and throughout the world in the compilation of scientific bibliographies, and in the classification of abstracts from periodicals and other fugitive material.

It seems, too, that this classification has not proved the effective tool that the authorities expected. It was hoped, we were told, to formulate an entirely new scheme, using decimal figures for notation, to be adopted in 1940.<sup>1</sup> The outline schedules are already published, but whether this scheme will materialize and be put into operation, entailing as it does such a colossal amount of alteration, time alone will show.

<sup>1</sup> See *Appendix I*

## THE COLON CLASSIFICATION

MR. S. R. RANGANATHAN is librarian of the Madras University, and founder and Secretary of the Madras Library Association. He has published books on many aspects of librarianship, and may be regarded as the Dewey or Duff Brown of India. In point of fact, his work is more definitely of a pioneer character, his is a creative mind, thinking anew the first principles of librarianship in terms of India and Hindu philosophy.

The Colon scheme<sup>1</sup> is essentially Indian, not only in its approach to knowledge and its allocation of categories, but also in that it involves a new treatment of classification unknown to the Western world—unless one can regard as parallel the Brussels scheme, with its synthesis of schedules. We quote the author's own words:

"The *Colon Classification* differs from Dewey's *Decimal Classification* and the volumes of the *Congress Classification* in some fundamental respects. It is their manifest aim to provide a ready-made Class Number for most topics. Hence, such manuals consist, for the most part, of the Schedules of Classification, and their schedules are by several times larger than that of the *Colon Classification*.

"In the *Colon Classification*, however, ready-made Class Numbers are not assigned to topics. The schedule in the *Colon Classification* may be said to consist of certain standard unit schedules. These standard unit schedules correspond to the standard pieces in a Meccano apparatus. Even a child knows that, by combining these standard pieces in different ways, many different objects can be constructed. So also, by combining the classes in the different unit schedules in assigned permutations and combinations, the Class Number for all possible topics can be constructed. In this scheme, the function of the Colon ( ) is like that of the bolts and nuts in a Meccano set."

The objects sought through this synthetic method are minuteness of classification—extending to the individualizing of every book in the library—a high mnemonic value, hospitality and elasticity, combined with great brevity as to the printed schedules. Naturally the symbols used for individual books frequently run to great length.

<sup>1</sup> Ranganathan, S. R., *The Colon classification*, 1933

## THE COLON CLASSIFICATION

It would be practically impossible to condense the extremely complex rules of classification or to give any kind of conspectus of the schedules that would not be misleading. The following *résumé* is necessarily defective every book is differentiated by a Call Number consisting of two parts, the Class Number and the Book Number; together, these individualize the book. So much is common to many schemes, but in the Colon Scheme both numbers are very complex symbols compounded from many unit schedules. Both parts utilize notations comprising alphabets of capitals and arabic numerals, and in addition the Class Numbers utilize lower-case letters. The Class Number is compounded first from the subject classes and their subdivisions, and then successively in turn by various devices and subdivisions. The Book Number is compounded of Language Number, Date Number, Accessions part of Book Number, Volume Number, and Supplement Number. We will leave the Book Number at that and return to the far more complex Class Number (Incidentally "number" has in this scheme no peculiarly numerical significance a "number" may contain letters and/or figures).

The first stage in assigning a Class Number is the allocation of the book to one of the great "Subject Divisions" ("Main Classes" in Dewey and similar schemes) to be subsequently subdivided by topic according to the detailed schedules and the special procedure for each such Division. The main Divisions are as follows:

1-9 Generalia	N Fine Arts
A Science (General)	O Literature
B Mathematics	P Philology
C Physics	Q Religion
D Engineering	R Philosophy
E Chemistry	S Psychology.
F Technology	T Education.
G Natural Science (General)	U Geography
and Biology	V History.
H Geology.	W Politics
I Botany	X Economics
J Agriculture	Y Miscellaneous Social Sciences,
K Zoology	including Sociology.
L Medicine	Z Law
M Useful Arts	△ Spiritual experience and
	mysticism

## BOOK CLASSIFICATION

The process of subdividing by topic is normally simple, and figures are used decimally, but there are many divisions where a succession of *characteristics* is applied in order. These are really minor schedules, and the principle involved is familiar to most students of other schemes. Thus Dewey divides Literature first by language, secondly by literary form, thirdly by period, and fourthly by author, with an optional provision for further subdivision for texts, criticism, etc. Similarly, history is arranged first by country and then by period. In the Colon scheme, such devices are far more frequently used, and they have, moreover, to be compounded by the user from the unit schedules. The successive characteristics are separated by the Colon device. This method may be compared with Bliss's use of the Systematic Auxiliary Schedules, especially Schedules 8-20 which are confined to particular classes or sub-classes. In the Colon scheme several such tables have normally to be applied in a certain order to compound a single class number.

Special schedules are provided for Geographical Divisions (a Local List), Language Divisions, and Chronological Divisions. There is also a Schedule of common subdivision, utilizing as the primary symbol the lower-case letters of the alphabet. The various parts of a Number are split up by the Colon. As the Colon is regarded as fitting into sequence between 0 and 1, it follows that this device enables aspects of special applications of major topics to take precedence on the shelves before subordinate topics. The more important devices utilized are—apart from the Geographical Device and the Chronological Device—the Favoured Category Device, the Classic Device, the Subject Device, the Alphabetic Device, and the Bias-Number Device. There is no necessity to explain these terms here; they are quoted merely to emphasize the minutæ of devices rendered necessary by this extremely synthetic approach to classification. It stands at the farthest possible point from the Library of Congress Scheme, where no common subdivisions, local lists, or mnemonic devices are utilized.

Some examples of the Colon scheme:

- |             |  |
|-------------|--|
| (1) 251qN33 | Ranganathan. Colon classification.           |
| G3          | 251 comes from the Generalia Division, where |
|             | 2 = Library Science, 25 = Technical Library  |
|             | Science, and 251 = Classification            |

## THE COLON CLASSIFICATION

q is a Common Subdivision standing for Bills, Acts, Codes, etc.

N = period 1900-1999 (Chronological Divisions).

N33 = the year 1933 (date of first publication)

(The lower section is the Book Number, and represents the date of the particular edition.  
G = 1930-1939, G3 = 1933)

- (2) O 2J64 90B9 Critical works on Shakespeare, dealing with his astronomical knowledge. This is only a Class Number, an actual book would require in addition a Book Number

O = Literature

O 2 = Drama

J64 = 1564, the date of Shakespeare's birth, the symbol comes from the Chronological Divisions table, and is used to differentiate the author

.9 = Criticism it comes at the end of a sequence 1-8 (subdivided as required decimally) of individual works—the Work Number.

0 = a Bias Number, indicating that it is followed by a topic-symbol representing a special application

B9 = Astronomy (B = Mathematics, of which Astronomy is here regarded as a sub-division)

The Colon Scheme is not recommended for general use in this country, at present it is being used in the Madras University Library. It is an extremely scholarly scheme, and is specially valuable in its treatment of Indian and Oriental topics. To the student it is of interest primarily as the most complete example of a synthetic scheme, capable of exhaustive analysis. The advanced student should not fail to study the schedules themselves; for the detailed application of the successive characteristics and devices, and the underlying principles involved, throw much light on the basic principles of classification. The scheme was devised primarily for use in a large academic library, and it should be of maximum service in classifying a world bibliography, such as that of the Brussels Institute.

## BLISS SYSTEM OF BIBLIOGRAPHICAL CLASSIFICATION

THE author was formerly librarian of the College of the City of New York, and has devoted a lifetime to research in classification and cataloguing. The scheme has been in use in the College Library since 1902, but the full schedules have not yet been issued in printed form. An outline of the main classes was published in the *Library Journal* in 1912, and was reprinted in Richardson's *Classification*. The schedules as first published in 1935 constituted the third part of a trilogy,<sup>1</sup> perhaps the most comprehensive treatise on classification in print. In this volume the scheme was expanded only to a "two-place" outline, with an introduction and index, but this classification is far more detailed in its scope than might be supposed from this statement. In 1940 Bliss published the first of four volumes of the fully expanded schedules. This volume<sup>2</sup> covers Classes A-G (Philosophy and the Sciences) with introduction, systematic auxiliary tables and relative index for these seven classes. The degree of expansion, to three places (rarely to four) is adequate even for libraries of national importance.

The important features of this scheme are its scholarship, manifested in the scrupulous care that all groupings shall be acceptable to even the most specialized users, and its adaptability, manifested in the large number of alternative places provided without the risk of confusion. The synthetic principle, already noted as so strongly characteristic of the Colon scheme, is prominent here in the provision of "Systematic Schedules," provided for the subdivision of various topics.

### *Main Outline and Subdivisions*

The following outline gives the main classes, the first nine (1-9) are known as the "Anterior Numeral Classes," and are purely bibliothetic in character.

<sup>1</sup> Bliss, H. E. *Organization of knowledge*, 1929, *Organization of knowledge in libraries*, 1933; *A System of bibliographical classification*, 1935, 2nd ed. revised (but not expanded), 1936.

<sup>2</sup> Bliss, H. E. *A Bibliographical classification extended by systematic auxiliary schedules for composite specification and notation. In four volumes—Vol. I, Introduction, anterior tables and systematic schedules and Classes A-G*, 1940.

## BLISS. SYSTEM OF BIBLIOGRAPHICAL CLASSIFICATION

1. Reading-room collections, chiefly for reference use
- 2 Bibliography, Library Science and Economy
- 3 Select or special collections, Segregated books, etc
- 4 Departmental or Special collections
- 5 Documents or Archives of Governments, Institutions, etc.
- 6 Periodicals (including serial publications of societies).
- 7 Miscellanea
- 8 Collections , Historic, Local, or Institutional interest
- 9 Antiquated Books or Historic collections

These correspond very broadly to the General classes of other schemes, but it will be observed that they are strictly "form" or "location" markings. Three of the divisions accommodate general works, Bibliography, Periodicals and Miscellanea. The remainder provide for special collections of books which for some reason the librarian may wish to mark distinctively and shelve apart from the main collection of books. The extent to which these devices are used depends upon the scale and complexity of the library service. Few public libraries would need to make use of these classes as a whole.

The main subject classes are

- A Philosophy and General Science (including Logic, Mathematics, Metrology, Statistics)
- B Physics (including Applied Physics, Special Physical Technology)
- C Chemistry (including Chemical Technology, Industries, Mineralogy).
- D Astronomy, Geology, Geography and Natural History (including Microscopy)
- E Biology (including Palæontology and Biogeography)
- F Botany (including Bacteriology)
- G Zoology (including Zoogeography and Economic Zoology)
- H Anthropology (including Medical Sciences, Hygiene, Eugenics, Physical Training, Outdoor Recreation, etc.)
- I Psychology (including Comparative Psychology, Racial Psychology, Psychiatry)
- J Education (including Psychology of Education)
- K Social Sciences (including Sociology, Ethnology and Anthropogeography)



## BOOK CLASSIFICATION

- L History (Social, Political, and Economic, including Geography, historical, national, and ethnographic, Numismatics and other ancillary studies).
- M Europe
- N America
- O Australia, East Indies, Asia, Africa, and Islands
- P Religion, Theology, and Ethics
- Q Applied Social Sciences and Ethics
- R Political Science
- S Jurisprudence and Law.
- T Economics
- U Arts, Useful and Industrial
- V Fine Arts and Arts of expression (including Indoor Recreations and Pastimes)
- W Philology Linguistics and Languages other than Indo-European
- X Indo-European Philology Languages and Literatures
- Y English (or preferred) Language and Literature Literature in general, Rhetoric, Oratory, Dramatics, etc
- [Z Religion and Theology (alternative place)]

Geography,  
Ethnography,  
History, etc

An example of the subdivision from the full schedules

AM-AW	Mathematics	AN	Arithmetic, General
AM	General	ANA	Treatises
AN	Arithmetic	ANB	Practical arithmetic.
AO	Algebra	ANC	Numbers
AP	Equations	AND	Decimal numbers
AQ	Higher Algebra	ANE	Duodecimal system.

### *The Systematic Schedules*

Apart from the schedules of the main classes, there were originally nine tables, called Systematic Auxiliary Schedules. Since 1940 these have been expanded to no less than twenty. They are for use in subdivision on lines analogous to the use of the common subdivisions of Dewey. The student is warned that several of the tables have been renumbered in the 1940 edition which gives the schedules described here. Actually only schedule 1 and 2 are applicable throughout the system;

## BLISS. SYSTEM OF BIBLIOGRAPHICAL CLASSIFICATION

tables 3-7 are applicable over large groups of classes ; while tables 8-20 are highly specialized for limited use within certain classes or sub-classes.

Schedule 1 Numercal subdivisions of any class or section , mnemonics some constant, some adaptable (*numerals*) For details see below under *Form Divisions*

Schedule 2 For geographical subdivision (*lower-case letters*) (An expended table 2(a) is provided)

Used where required for local subdivision of topics under Sciences, especially Social Sciences, under the Humanities, Industres and Arts , but *not* under History, Human Geography, Ethnology, Languages, and Literature, where other tables are provided The basic principle of this schedule is practical rather than historical (contrasting with Classes L-O) and such mnemonic devices as the symbols f for France, i for Italy are frequent throughout Examples

a	Amencia	c	Latin Amencia
aa	North Amencia	ca	Mexico and Central
ab	British Amencia.		Amencia.
abn	Newfoundland	cb	Mexico
		cbm	Mexico City

This table can be used at KD, Social Surveys, e g. a Social survey of Amencia would be marked KDa

Schedule 3 For the subdivision by languages (*capital letters*) Applicable under Literature, especially for the "forms," for translations, etc This table may be applied elsewhere instead of schedule 2, to Arts, Modern Philosophy (AD), and to the History of Science

Like Schedule 2, this table is mnemonic and practical rather than systematic (contrasting with Classes W-Y) Examples :

A	Ancient	P	Polish
C	Latin	R	Russian.
F	French	W	Chinese.
I	Italian	Y	Japanese.

Thus under AD, Modern Philosophy, ADF represents Modern French philosophy ; ADW Modern Chinese philosophy.

## BOOK CLASSIFICATION

Schedule 4. For subdivision under the histories of countries, nations, states, cities, etc.<sup>2</sup> (*figures and capital letters*) For details see below under *History and Geography*

(a) Supplementary for states, counties, duchies, provinces, cities, and other localities (*capital letters*)

(b) Supplementary for periods of history (*capital letters*)

These schedules are not yet available in a fully expanded form

Schedule 5 For subdivision of the philology of any language (Not applicable to the chief literary languages)

(a) For the linguistics of the chief literary languages

(b) For the history and criticism of the literature.

(c) For the "forms" of literature, especially for collections (*all figures and capital letters*)

Schedule 6 For the arrangement of an author's works (*figures, capital letters and lower-case letters*) For details of Schedules 5 and 6 see below under *Language and Literature*

Schedule 7 For sub-classification under any personage (*figures and capital letters*) Presumably this schedule corresponds closely with Schedule 6

Schedules 8-20 are limited in scope to the subdivision of single classes or subsections of these classes Many of these are to be printed with the class to which they refer and are not yet available in their revised and detailed version Schedules 8 and 9 may be taken as being examples of these specialized tables

Schedule 8 For subdivision under Special Chemistry (CI-CR) (*figures and capital letters*) Examples

2 Bibliography.	A Chemistry of the Element
3 History	F Production
5 Reports	L Alloys.

The symbols are used after a comma as a separating device, e.g., under CK, Metals, is placed CN, Precious Metals, thus CN,F, represents the Production of Precious Metals

Schedule 9 For subdivision under Chemical Industries (CU-CY). (*figures and capital letters.*) Examples -

A Comprehensive Study.	P Costs.
G Analysis	T Taxes.

## BLISS. SYSTEM OF BIBLIOGRAPHICAL CLASSIFICATION

The symbols are used after a comma, e g , under CV, Organic Industries, is placed CW, Dyes, Pigments, etc , thus CW,A represents a Study of the Pigment Industry

As has been noted, the only complete printed schedules are at present limited to "two-place" division, further subdivision is made with the use of the auxiliary schedules. In many classes and the subdivision of classes, the use of these tables will suffice for very full expansion. In practice, their use may be compared to that of the Categorical Tables of the Subject Classification and the various specialized schedules of the Classification Décimale

### *Notation*

Apart from the special tables set out above and the Anterior Numerical Classes, the notation uses the letters of the alphabet, excluding Z as far as possible for fear of confusion with the figure 2, the cipher 0 is also excluded, because it is indistinguishable from the letter O, but curiously enough the author has no qualms about the letters I and S

- C Chemistry
- CU Special Chemical Industries
- CW Dyes, Pigments, etc Fermentation and Distillation Industries,  
etc
- CWT Wine-making

The notation promises considerable brevity in the average length of symbols. This is due to the area of the base of the notation (which is 25<sup>n</sup> plus the supplementary power of nine digits), and also to the care with which the author has distributed his schedules in order to allocate symbols in just proportion to present-day bulk and relative importance of the literature available. Examples:

- 2N Libraries, Library Economy
- QY Internationalism
- MVQ History of England in the first part of the Nineteenth Century  
(Q comes from systematic schedule 4b).
- BT Aeronautics, Aviation.
- VV Music.
- VW Theory and Technique of Music.
- VX Musical Scores.

## BOOK CLASSIFICATION

Other examples illustrating the detail which can be embodied in a comparatively brief notation, and also the method of building up the numbers :

- YFGK Influence of Shakespeare on German literature, YF in Class Y Literature, represents Shakespeare, G (from Schedule 6) means author's influence in other countries, K (from Schedule 3) German
- DOja Economic geology of the Alpine Regions DO is Geology, ja (from Schedule 2a) represents The Alps
- T6 A Periodical (6) relating to Economics (T)
- TMk Commerce in Germany, TM means Commerce in Class T, Economics, k represents Germany (from Schedule 2)

### *Form Divisions and Mnemonics*

The form divisions, i.e. Schedule 1, are common and may be used at every stage of the subdivision if required. They correspond in general character with those of the Decimal Classification, and are numbered 1-9. Their relationship to the Anterior Numerical classes parallels that between Dewey's common form divisions and his General Works class.

- 1 Reference Books (including dictionaries, glossaries, handbooks, atlases, etc.)
- 2 Bibliography
- 3 History, scope, relation, study, etc
- 4 Biography
- 5 Documents, ancillary material (including reports, catalogues, etc.)
- 6 Periodicals
- 7 Miscellanies (including collected writings, essays, etc.)
- 8 Study of subject (alternative to 3).
- 9 Antiquated or superseded books

It may be noted in passing that Bliss allows for several alternative numberings here, e.g. Biography may be given the number 9 instead of 4, with a reshuffling of the other forms. It goes without saying that such permitted alternatives would be fixed rigidly by one clear cut decision of the classifier using the scheme.

## BLISS. SYSTEM OF BIBLIOGRAPHICAL CLASSIFICATION

The numbers are added directly after the main notation symbol :

TS2	Bibliography of Insurance.
VP6	Periodical on Engraving
OJB1	Dictionary of the Political History of Japan
LH4	Biographies of Jews

Apart from the common form divisions, and the use of the Systematic Schedules within classes, the scheme is rich in mnemonic devices. The author assures us that the schedules have not been distorted to provide these. The most common form is of the "initial letter" type, and is most frequently used when an alphabetical arrangement of topics is followed

U	Useful Arts	I	Psychology
UA	Agriculture	IC	Consciousness
UE	Engineering	II	Individual psychology

Classes U and I are not subdivided alphabetically throughout

### *History and Geography*

In the arrangement of Classes M, N, and O, locality takes precedence. The History (all phases—Political, Constitutional, etc.), Geography, Archæology, etc (in all 35 factors) are collected here at each stage of the subdivision by the use of Schedule 4<sup>1</sup>. This method is comparable with that of Brown, and is of great practical value.

In Class M, Scotland is represented by MX. Examples of the subdivision using Schedule 4

MX	Scotland
MX3	Topography, etc
MX4	Archæology
MXA	Comprehensive history
MXB	Political history
MXC	Constitutional history.
MXH	Social history
MXI	Intellectual history
MXK	Ecclesiastical history.

<sup>1</sup> *Schedule 4 is not yet available in detail. The examples above are taken from the 1936 edition of the scheme, where these Auxiliary Schedules were numbered, 3, 3a, 3b respectively.*

## BOOK CLASSIFICATION

MXN	Naval history.
MXP-MXV	Periods of Scottish history.
MXW	Local history (subdivided)